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FEDERAL-GRANT RESEARCH
at the
STATE AGRICULTURAL
EXPERIMENT STATIONS

Projects on
VETERINARY SCIENCE
Part 23

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

Compiled April 1958 by

The State Experiment Stations Division, Agricultural Research Service, U.S. Department of Agriculture, Washington 25, D. C., for use of workers in agricultural research in the subject-matter areas presented. For information on specific research projects write to the Director of the Station where the research is being conducted.

Issued May, 1958

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Contents

Page

I. GENERAL 1

II. DISEASES OF CATTLE

A. Anaplasmosis 4
B. Bloat 6
C. Brucellosis 8
D. Ketosis 10
E. Leptospirosis 10
F. Mastitis 12
G. Mucosal Disease 14
H. Shipping Fever 15
I. Sterility 16
J. Vibriosis 20
K. Urolithiasis 22
L. White Muscle Disease 23
M. Other Diseases 24

III. DISEASES OF SWINE

A. Enteritis 26
B. Hog Cholera 28
C. Other Diseases 30

IV. DISEASES OF SHEEP AND GOATS

A. Vibriosis 32
B. Other Diseases 33

Contents--Continued

Page

V. DISEASES OF HORSES AND MULES. 34

VI. DISEASES OF POULTRY
  A. Bacterial Diseases. 35
  B. Leucosis Complex. 37
  C. Respiratory Diseases. 39
  D. Other Diseases. 48

VII. PARASITES OF CATTLE 52

VIII. PARASITES OF SWINE. 59

IX. PARASITES OF SHEEP AND GOATS. 60

X. PARASITES OF HORSES AND MULES 61

XI. PARASITES OF POULTRY. 62

XII. MISCELLANEOUS PARASITES 64

XIII. TOXICOLOGY. 66

IVX. REGIONAL PROJECTS 71

XV. LIST OF SUBJECT-MATTER AREA COMPILATIONS Attachment

INTRODUCTION

This compilation is one of a series providing information on State agricultural experiment station research supported by Federal-grant funds appropriated annually by Congress under authorization of the Hatch Act of 1887, as amended and approved Aug. 11, 1955, and Section 204(b) of the Agricultural Marketing Act of 1946. It is prepared for use by research workers in the subject-matter areas presented. Only that part of each State's research program supported by Federal-grant moneys is included.

In addition to the Federal-grant moneys, the State experiment stations receive some Federal support through cooperative agreements or contracts with the U. S. Department of Agriculture. Information on such research, along with other departmental research, is available in the Central Project Office, Agricultural Research Service.

A substantial part of each State agricultural experiment station's research is supported with moneys appropriated by the respective State or Territorial Legislatures and through other forms of private and public financing. Information on current agricultural research at the stations which is not financed under the Federal-grant program or through USDA cooperation can be obtained from experiment station directors.

The information given in the series of Federal-grant compilations includes the title and objectives of each Federal-grant project pertaining to the subject given on the cover. The identification of each project gives the department(s) conducting the research, the station number of the project, and the number of the regional project if it is a contributing project.

Relevant regional projects, if any, appear at the end of the compilation. States having projects contributing to regional projects are indicated. The Roman numeral (and capital letter) refer to the location in the summary of the contributing project title and objectives. The States are grouped into four major regions. These are designated NC-North Central, NE-Northeastern, S-Southern, and W-Western. The capital letter "M" following the letters for the region indicates regional marketing projects.

GENERAL

Calif. *The Nature, Detection, Modification and Differentiation of Viruses Responsible for the Vesicular Diseases of Domestic Animals*. To (1) develop further or modify present serological test for detection of antibodies in sera of animals having been infected with vesicular viruses; (2) develop an *in vitro* neutralization test to be conducted on susceptible animals or a tissue culture technique for identification and differentiation of vesicular disease viruses; (3) determine relation of antigenic structure of immunologically distinct types of VE and VS; (4) elucidate further the properties, nature, and immunological identification of strains of VE virus which have been isolated from field outbreaks.
Vet. Sci. 1399 Coop. ARS

Calif. *The Development of a Method or Methods for Immunizing Against Myxomatosis*. To produce a vaccine capable of immunizing rabbits against myxomatosis, and to determine the efficacy of some of the newer antibiotics as possible therapeutics in this infection. More distant objects include determination of whether this virus exists in a plurality of strains and the relationship of the virus to the classical strain isolated from rabbits in the Argentine. Also, some understanding of epidemiology of myxomatosis will be desirable.
Vet. Sci. 1412

Calif. *Pleuropneumonia-Like Organisms (PPLO) and Disease in Animals*. To (1) characterize, study the relationships, and test the pathogenicity of PPLO strains at hand and to be isolated; and (2) study the nature of the disease produced by pathogenic PPLO in animals of various species, especially as to transmission, symptoms, lesions, therapy and prophylaxis.
Vet. Sci. 1660

Mass.

The Effect of Beta-Propiolactone on the Immunogenic Property of Cells of Salmonella Typhimurium. Test the immunogenic property of cells of Salmonella typhimurium after treatment with beta-propiolactone.

Bact. 138 Coop. USPHS

Mich.

Effects of Hormonal Imbalances on Nutritional Requirements. To determine the effects on specific dietary needs resulting from (1) administering large doses of cortisone, estrogens, androgens, thyroid-active substances, insulin and growth hormone; and (2) removing adrenals, gonads, thyroids, or from treatment with thiouracil or alloxan. It is hoped that these studies will further elucidate interactions between hormones and dietary factors in the body so that both may be used with greater efficacy and safety in the future.

Physiol. 105

Mich.

Basic Cell and Tissue Responses in Animal Disease. Use electron microscope, tissue culture, and radioactive tracers to learn response of cells to virus infections.

Anat., Physiol. 111

Minn.

Neuroanatomical Investigations in Domestic Animals. 1. Neuroanatomical Studies of Rumination in Domestic Animals. 2. Experimental Investigation of Horner's Syndrome in the Horse. To (1) investigate central nervous system of domestic animals by established procedure ; (2) evaluate results of above and use information to solve problems of diagnosis and treatment of disorders of nervous system.

Vet. Med. 2618

Minn.

Studies of Adrenal Glands of Ruminants. To (1) work out satisfactory technique for morphological and biochemical studies of adrenal medulla; (2) apply techniques in correlated histological, histochemical, and biochemical studies of adrenal medullae of ruminants, from animals under conditions of rest and stress.

Vet. Med. 2628

Mo.

Hemorrhagic Conditions in Farm Animals. To study (1) the physiological and biochemical phenomena associated with hemorrhage in farm animals; and (2) other hemorrhagic conditions affecting Missouri farm animals.

Agr. Chem. 56

Mo. *Experimental Surgery on the Ruminant Stomach*. To study (1) the use of standard surgical techniques to prepare experimental animals for research purposes; and (2) the development of new surgical techniques to facilitate the study of the physiology of ruminant digestion.
Vet. Med. 252

Pa. *The Nature of the Forssman Hapten*. To (1) simplify isolation purification procedures for Forssman hapten from erythrocytes of sheep; (2) identify components making up this hapten; (3) determine the manner in which components are combined; (4) study mechanism of the reaction of purified Forssman hapten with specific antibody.
Agr. & Biol. Chem. 1305

Pa. *Cell Systems, Derived From Normal Mammalian Tissues and Maintained in Continuous Cultivation as Media for the Propagation of Viruses*. To (1) acquire several cell systems originating from normal human tissues and adapted to continuous *in vitro* cultivation; (2) attempt to initiate new cell systems in continuous cultivation *in vitro* by adaptation from cultures of normal animal tissues, e.g., beef and lamb heart; (3) study such *in vitro* cell cultures as substrates for propagation and serological study of selected animal viruses; (4) try to isolate, in continuous *in vitro* cell cultures, new viral agents from various animal hosts.
Bact. 1320

Va. *The Pathologic Physiology of Enterotoxemias in Domestic Animals*. (1) Produce, experimentally, the enterotoxema syndrome in various animal species; (2) make detailed study of changes occurring in body tissues, fluids, and secretions during development of this syndrome; (3) study gross and microscopic lesions of enterotoxemia and correlate findings in effort to characterize the pathologic physiology of enterotoxemia.
Anim. Path., Biochem. & Nutr. 86103

DISEASES OF CATTLE

Anaplasmosis

Calif. *The Nature of the Etiological Agent of Anaplasmosis in Cattle*. To determine (1) possibilities of cultivating agent *in vitro*; (2) the possibilities of cultivating the agent in chick embryo or tissue culture; (3) the chemical nature of *Anaplasma marginale* by histochemical studies of red blood cells or tissues containing the bodies; (4) the possibilities of multiplication of agent in hemopoietic tissues before release into blood stream; (5) the nature of immunity produced by etiological agent; (6) the nature of infection in recovered animal; and (7) the methods of immunization against disabling infection.
Vet. Sci. 1593

Fla. *Anaplasmosis of Cattle*. To (1) continue investigations of nature of *Anaplasma marginale* to develop methods for its cultivation *in vitro*; (2) devise means for its propagation in non-bovine animals; (3) seek practical means of detecting carrier cattle and to apply results obtained toward control of the disease.
Vet. Sci. 462

La. *Diseases of Cattle: Anaplasmosis*. To (1) determine nature of etiologic agent of anaplasmosis; (2) produce effective vaccine; (3) adapt anaplasmosis etiologic agent to unnatural host; and (4) screen newly released medicinals to determine if they are therapeutically effective.
Vet. Sci. 230

Nev. *Immunization Methods Against Anaplasmosis*. To (1) study development of complement fixing and possible neutralizing antibodies in active and carrier states of anaplasmosis in relation to immunity; (2) develop a method of immunization against anaplasmosis which will not produce carriers.
Vet. Sci. 43

Okla. The Biology and Control of Vectors of Anaplasmosis. To develop and demonstrate more effective means of controlling the vectors of anaplasmosis and to intensively study the biologies of these arthropods so that the most effective time for control may be found.
Vet. Res. 312 Coop. ARS

Oreg. Nature and Control of Anaplasmosis Disease in Cattle. To (1) determine the nature of the disease and its causative agent; (2) develop methods of diagnosing disease in carrier animals; (3) determine agents of transmission and develop methods for their control; (4) determine existing reservoirs of disease; (5) develop and test agents for treatment or prevention against the disease; (6) develop a control program for the disease.
Vet. Med., Ent. 293 Coop. ARS

Tenn. Evaluation of Control Measures Against Anaplasmosis. To (1) evaluate efficiency of different management programs in control of anaplasmosis by following on each station retention of anaplasmosis reactors and anaplasmosis-free cattle in separate herds on same station or slaughter of anaplasmosis reactors or retention of reactor cattle without regard to anaplasmosis reaction or use of insect vector control with any of above programs; (2) determine reliability of complement-fixation test by learning herd histories as connected with anaplasmosis, and calf inoculation studies.
Anim. Husb., Vet. Sci. 74

Tex. Anaplasmosis in Cattle. To (1) determine the characteristics of causative agent; (2) develop and evaluate serological testing procedures for detection of anaplasmosis; and (3) develop effective treatment.
Vet. Med. 393

Bloat

Calif. Studies on Bloat in Ruminants. To study basic factors influencing formation and elimination of ruminal gas in cattle and sheep.
Anim. Husb. 1703 Coop. ARS

Ind. Biochemical Aspects of Ruminant Bloat. To (1) determine what constituents of feeds and forages increase the incidence of bloat; and (2) determine what biochemical compounds and reactions are involved in bloat.
Biochem., Vet. Sci. 828 (NC-27)

Iowa Physical and Chemical Aspects of Bloat. To (1) study effect of dietary components and therapeutic agents on physical and chemical characteristics of rumen ingesta; (2) determine relation of dietary characteristics to incidence of bloat; (3) determine various physical and chemical characteristics of rumen ingesta and of blood and other tissues from bloated animals; (4) determine the efficacy of prophylactic procedures and therapeutic agents; and (5) determine relation of physical characteristics of animal to incidence of bloat.
Anim. Husb., Dairy Husb., Chem., Vet. Sci. 1267 (NC-27)

Ky. In Vivo and In Vitro Studies of the Cause and Prevention of Bloat. Isolate and identify by in vivo and in vitro experimental procedures the factor(s) causing bloat in ruminants grazing forages and learn practical ways in which causative factor(s) may be counteracted.
Anim. Nutr. 252

La. Fundamental Causes of Bloat in Ruminants. To determine (1) basic causes of bloat as related to physiological, biochemical, bacteriological, nutritional, and anatomical criteria; (2) relationship of various pasture management and grazing practices, pasture mixtures, soil types and soil fertility levels to occurrence of bloat; (3) mode of inheritance and frequency of occurrence of bloat in related animals; (4) value of various recommended treatments for bloat and their effects under controlled conditions on subsequent milk production; (5) relationship of the physical condition of the animal to susceptibility to bloat; and (6) whether or not bloat produced experimentally and under normal feeding practices are the same.
Dairy 840

Mich.	Investigations of the Causes and Methods of Control of Frothy Bloat. To determine (1) the chemical and physical properties of saliva; (2) the relationship of saliva and its components to frothy bloat; (3) the effect of rations on the amount of froth produced; and (4) the role of microorganisms in the production and stabilization of froth in the rumen. Dairy Ind. 812 (NC-27)
Minn.	Bloat Producing Mechanisms in Ruminants. To (1) clarify poorly understood motor control mechanisms in the ruminant stomach, especially the forestomachs; (2) develop a bioassay procedure for toxic, bloat-producing legume extracts. Vet. Med., Anim. Husb., Dairy Husb. 2624 (NC-27)
Miss.	A Study of the Causes and Prevention of Bloat in Cattle. To (1) study relationship of incidence of bloat to fertilizer treatment, soil type and soil fertility; and (2) study various preventive treatments, such as minerals, drugs and management practices. Anim. Husb. HE-4
Mo.	Pasture Improvement - The Incidence of Bloat and Methods for Its Control. To determine (1) what conditions produce a high incidence of bloat; and (2) whether or not methods of management can be used to control it. Anim. Husb. 154-d
N. C.	Studies on Bloat in Ruminants. To (1) determine the normal physiology of eructation; (2) produce bloat experimentally; and (3) determine chemical and physiological differences between those feeds and ingesta associated with bloated animals and those associated with normal animals. Anim. Ind. 31
Ohio	Bloat in Ruminants. 1. Causes. To investigate causes of bloat based on clinical observations, examination of rumen samples for hydroscopic properties, volatile fatty acid content and microorganism variations and examination of blood concentrations of nitrogenous constituents. Dairy Sci., Vet. Sci. 123 (NC-27)
S. Dak.	Bloat in Ruminants. To (1) determine through physiological investigations cause and mechanism of death in bloat; (2) determine biochemical differences in bloat-producing and non-bloat-producing feeds and in rumen contents of bloated and normal animals; (3) ascertain bloat-producing potential of tetraploid and diploid forms in both yellow- and blue-flowered species of alfalfa. Dairy Husb. 245-R (NC-27)

Brucellosis

Calif. *The Eradication of Brucella Infections from Domestic Livestock*. To (1) develop practical methods for the detection of cows, normal with respect to parturition, but shedding Brucella in their secretions and excretions; and (2) determine the infectivity of *Brucella melitensis* and *Brucella suis* for cattle.
Vet. Sci. 1029

Mich. *Study of Brucella Infections*. To (1) identify and study natural biochemical factors in body fluids and tissues enhancing susceptibility to brucellosis; (2) develop method for growing in culture chorionic and placental epithelial cells of bovine; study parasitization of epithelial cells by *Brucella in vitro* and effect of biochemical agents on parasitization of epithelial cells by *Brucella*; (3) identify factor(s) determining acquired immunity; (4) maintain and study a large collection of cultures by *Brucella*; (5) determine significance of new field types of *Brucella*.
Microbiol. & Pub. Heal. 4

Mich. *Study of the Genus Brucella*. To (1) determine differences in amino acids utilized by species of *Brucella* under different environmental conditions; (2) correlate amino acid structure of Brucella cells with virulence and avirulence; (3) continue study of enzyme systems of *Brucella* cells to learn relationship to virulence.
Microbiol. & Pub. Heal. 56

Minn. Brucellosis of Cattle and Other Farm Animals (a) Serological Tests Including the A.B.R. Test (b) Suspicious Reactors to the Agglutination Serological Test as Well as the A.B.R. Test. To study (1) relative value of various serologic and allergic tests, also new A.B.R. test for diagnosis of Brucellosis and methods of standardization of tests; (2) different strains of organisms as to adaptability for making antigens to be used in agglutination test; (3) effect of various preservatives on antigen behavior; (4) value of cataphoresis in determining agglutinating properties of the organism; (5) effect of various substances in suspending menstrum of antigen and effect of different bacterial concentrations; (6) significance of low agglutination titers; (7) possible changes in nature of antibodies during course of infection; (8) serological and antigenic properties of various fractions of Brucella abortus; (9) growth factors for B. abortus and B. suis and effects of certain factors in dissociation of strains; (10) more effective methods of treatment of Brucellosis in man under the subject of chemotherapy; (11) serological reactions of suspect cattle; and (12) the colostrum, fetal membranes and aborted fetuses for Brucella organisms whenever the opportunity permits.

Vet. Med. 2601 Coop. ARS

Mo. Blood Titer Studies in Brucellosis. To (1) develop technique for differentiating between vaccinal and field infection titers; (2) study application of this to interpretation of blood titers found in State plan for Brucellosis control; (3) establish presence or absence of Brucella organisms in low-titer animals with history of having had Brucellosis; and (4) study possibilities of finding specific antigen suitable for differentiation purposes.

Vet. Med. 8

Ketosis

Del. Ketosis: Its Prevention and Treatment. To (1) evaluate effectiveness of treatments that have been proposed for ketosis; (2) evaluate preventive measures for ketosis; and (3) investigate effect of treatment of ketotic cows with products found in tricarboxylic acid cycle for metabolism of carbohydrates.

Anim. & Poul. Ind. 45-AI

Ind. Ketosis in Sheep and Cattle. To study etiology and basic nature of ketosis and determine means to prevent and treat it under natural and controlled conditions.

Biochem., Vet. Sci. 726

Md. Ketosis and Parturient Paresis in Dairy Cows. To obtain additional information on the causes, methods of treatment and methods of prevention of ketosis and parturient paresis (milk fever); new forms of ACTH and new or different steroids will be used. Also, various other substances will be tested for activity in treatment.

Dairy Husb. G-37

Leptospirosis

Ala. The Relationship of Leptospirosis to Bovine Reproductive Disorders. To (1) determine the incidence of antibodies of various species or serotypes of leptospires in cattle sera obtained from samples submitted to Alabama Veterinary Diagnostic Laboratory and Cooperative State-Federal Bang's Disease Laboratory; (2) determine if leptospires can be isolated from selected herds with serological and/or clinical evidence of leptospirosis; (3) develop improved methods of diagnosing the disease in cattle; (4) determine if there is a correlation between serological reactions and/or presence of the organism in body fluids or tissues with definite types of reproductive disorders.

Anim. Dis. 575

Ariz.

Hemoglobinuria in Pasture-Fed and Range Cattle. Investigate causes of bovine hemoglobinuria; evaluate immunization with killed-culture vaccine as a means of preventing bovine hemoglobinuria due to leptospirosis; evaluate methods of treating bovine hemoglobinuria; and identify way leptospira survive and infect in a desert environment.

Anim. Path. 397

Ga.

Laboratory Diagnosis and Treatment of Leptospirosis in Cattle and Swine. To (1) develop a method of rapid diagnosis in the acute stage animal; (2) determine more about growth requirements and metabolic by-products of organisms; and (3) study epidemiology and pathogenesis of the disease in domestic animals in relation to effectiveness of various treatments for the disease.

Anim. Dis. 214

Ill.

Studies of the Epizootiology and Control of Leptospirosis in Cattle, Sheep, and Swine. To obtain information on the occurrence, symtomatology, diagnosis and treatment of leptospirosis in animals.

Vet. Res. 70-301

La.

The Epizootiology, Diagnosis, Control and Treatment of Bovine Leptospirosis. To (1) study epizootiological features of bovine leptospirosis; (2) design experiments to contribute more knowledge pertaining to diagnosis, control, and treatment of bovine leptospirosis; (3) study susceptibility of sheep, goats, dogs, etc.

Vet. Sci. 921 (S-30)

Mass.

Relationship of Riboflavin to the Development of Leptospirosis. To ascertain if a relationship exists between riboflavin deficiency and susceptibility to leptospirosis by using hamsters and horses as experimental animals.

Vet. Sci. 141

S. Dak.

Leptospirosis of Farm Animals in South Dakota. To (1) develop diagnostic techniques; (2) survey incidence of leptospirosis infections in cattle, swine and humans in South Dakota; (3) isolate and identify strains of leptospira from fetuses and other suitable specimens; (4) study symtomatology and pathology of leptospiral infections in domestic animals; (5) investigate time animals remain carriers after infection; and (6) determine effectiveness of antibiotics in elimination of carrier state.

Vet. Sci. 270

Tex. Evaluation and Control of Leptospirosis in Livestock in Texas. To (1) determine extent of leptospiral infections in livestock in Texas; (2) attempt to develop practical methods of diagnosis; (3) determine susceptibility of various classes of livestock to leptospiral infections; (4) determine modes of infection and spread; (5) work out methods of treatment of active cases of leptospirosis; (6) develop methods to detect and eliminate carrier status of animals; (7) study effect of leptospiral infections upon fertility and infertility; (8) learn if there are alterations in the spinal fluid and blood constituents; and (9) determine if male transmits leptospirosis by copulation and if females can be infected by uterine placement of live organisms.

Vet. Med. 1011 (S-30)

Wash. The Control, Transmission, and Effect of Leptospirosis in the Bovine. To study (1) various leptospirosis vaccines as possible control measures; (2) various routes and sources of infection; and (3) effect of leptospirosis infection in fertility and pregnancy.

Vet. Sci. 1176

Mastitis

Calif. Bovine Mastitis: Diagnosis, Prevention, and Treatment. To determine ecologic significance of bacterial types commonly associated with mammary gland flora and of less common types of bacteria invading the udder; develop improved methods for detection of mastitic milk; obtain specific information on economics of mastitis; evaluate methods for prevention, prophylaxis, therapy, and control of variety of forms of mastitis, emphasizing the dairy cow.

Vet. Sci. 1064 Coop. ARS

Idaho A Study of Variation of Streptococci with Special Reference to Streptococcus Agalactiae. To (1) investigate factors associated with various types of variation of streptococci; (2) attempt to produce stable variants from selected strains of streptococci; (3) study morphological, physiological, and biochemical properties of stable variants; and (4) study antibody content of blood serum of animals inoculated with variants of streptococci, particularly S. agalactiae.

Bact. 226

Mass.

Nocardia Mastitis in the Cow. To (1) make clinical and cultural observations in a dairy herd where naturally occurring udder infection has been found; (2) attempt to remove infection by chemotherapy.
Vet. Sci. 115

N. H.

Diagnosis and Control of Bovine Mastitis. To (1) determine comparative efficiency of different procedures for diagnosis of mastitis; (2) determine characteristics and classification of mastitis streptococci and staphylococci; (3) determine value of new antibiotics or other agents for treatment of non-agalactiae streptococcus mastitis and staphylococcal mastitis; (4) develop control or prevention of staphylococcal mastitis by immunization of dairy cattle with staphylococcal toxoids and bacterintoxoids.
Bact. 120

N. Dak.

Evaluation of the Whiteside Test for Detection of Mastitic Milk at the Milk Receiving Station. To evaluate use of Whiteside test as means of detecting mixing of mastitic milk with normal milk. Learn relationship of bacterial counts to incidence of mastitis and/or dairy utensil sanitation.
Dairy Husb., Vet. Sci. 11--2

Ohio

Mastitis of Cattle - Factors Responsible for Variation in Resistance to Mastitis. To acquire additional information on bovine mastitis to serve as basis for developing more efficient methods for prevention, control, and treatment of diseased udders, especially (1) basic factors responsible for variation in susceptibility of udders to infection by mastitis-producing bacteria; (2) determination of microorganisms associated with mastitis and their means of promoting abnormal udder conditions; and (3) use of present and future knowledge for prevention, control and treatment of the problems.
Vet. Sci., Dairy Sci. 53 Coop. ARS

Tenn.

Elements of a Program to Control Mastitis in Pen-Type Barns. To determine essential items in effective program to control initiation and spread of mastitis in dairy herds kept in pen-type barns.
Dairy Husb. 90

Wis. Development and Evaluation of Improved Methods for Control of Bovine Mastitis. To (1) on staphylococcic mastitis, a. more accurately identify the staphylococci involved, b. determine whether such staphylococci readily change to a more drug-resistant stage and what effect such change has in the disease and in treatment, and c. determine what materials are more effective in the treatment of staphylococcic mastitis; (2) on mycotic mastitis or cryptococcic udder infection, a. determine more exactly how infection takes place, b. determine whether sensitivity is involved in the inflammatory process, c. determine which of the present drugs are most effective in treatment of cryptococcic mastitis, and d. study the pathologic alteration in cryptococcic and candida mastitis; and (3) test radioactive materials to determine if these can be employed for a better understanding of the inflammatory process.

Vet. Sci., Bact. 916

Mucosal Disease

Ind. Mucosal Diseases of Cattle. To (1) establish the nature of two mucosal diseases of cattle (virus diarrhea-Indiana and mucosal disease-Iowa) by clinical, pathological and epizootiological means; (2) characterize the etiologic agents of these diseases and determine if relationships exist between them and the other mucosal diseases of cattle; and (3) develop adequate means of prevention and control of these diseases.

Vet. Sci. 814 (NC-34) Coop. ARS

Mich. The Mucosal-Respiratory Diseases of Cattle in Michigan. To (1) characterize causative agent and determine its transmissibility and host range; (2) characterize and differentiate the disease by clinical, pathologic, biochemical, and immunologic studies; (3) cooperate with reference laboratories by submitting materials for differential diagnostic tests; and (4) develop means of control.

Vet. Path. 514 (NC-34)

N. Dak. The Etiology, Pathogenesis, Diagnosis, and Control of Mucosal Disease of Cattle. To (1) determine etiology of disease syndrome now classified as mucosal disease of cattle; (2) determine pathogenesis and epizoology of disease; (3) develop methods of differential diagnosis, (4) develop methods of control of mucosal disease.

Vet. Sci. 16-3 (NC-34)

S. Dak. Virus Diarrhea (Mucosal Disease) of Cattle. To determine etiology, pathology, modes of spread and control of an acute dysentery affecting cattle in South Dakota and adjoining states.
Vet. Sci. 253 (NC-34)

Wis. A Study of Mucosal Diseases of Cattle. Ascertain and clarify the interrelationships among certain undefined and defined diseases involving the mucosal membranes of cattle.
Vet. Sci. 983 (NC-34)

Shipping Fever

Colo. Shipping Fever in Cattle. To study the possibility that a virus is the initial agent in infecting cattle with a respiratory disease with frequent intestinal complications, with bacteria being only secondary invaders, and to correlate gross and microscopic pathology with bacteriological findings, autopsies will be made of as many animals as possible, and careful records kept of gross lesions.
Bact., Anim. Path. 74

Ill. Shipping Fever of Cattle. Study shipping fever by microbiologic and pathologic procedures and reproduce the disease under controlled experimental conditions.
Vet. Med. 70-344 (NC-44)

Mich. Pneumonia in the Food Producing Animals—Especially the Cow, Sheep, and Hog. To study (1) predisposing and active cause of pneumonia in the food producing animals, especially the calf, lamb, and pigs; (2) pathology of pneumonia in these animals, and point of origin in the lung and process of extension; (3) pathology of the other organs associated with pneumonia; and (4) effective curative and/or preventive measures.
Anim. Path. 41

Minn. Studies on the Etiology or Etiologies of Shipping Fever of Cattle. To (1) attempt to clarify etiology or etiologies of Shipping Fever Syndrome; (2) study efficacy of several biological, chemotherapeutic, or antibiotic products in prevention of syndrome; (3) study effect of stress factors in relation to predisposition to disease.
Vet. Med., Anim. Husb. 2629 (NC-44)

Nebr. *Shipping Fever of Cattle*. Study pathogenesis of shipping fever and isolate and characterize infectious agent(s).
Anim. Path. 513

Ohio *Shipping Fever Complex in Cattle*. To (1) study role of *Pasteurella multocida* and search for a virus or other unknown agent; (2) effectiveness of certain biologicals and therapeutic agents in prevention and treatment of shipping fever; (3) effect of environmental and managemental factors on incidence and prevention of shipping fever at time of marketing and during shipping from Western Range Areas to Midwestern feedlots.
Vet. Sci., Anim. Sci., Agr. Econ. 127

Sterility

Ala. *Infectious Agents Associated with Enzootic Reproductive Disorders in Cattle*. To (1) establish the infectious etiological factors associated with enzootic bovine reproductive disorders (excluding brucellosis, leptospirosis, trichomoniasis, and vibriosis); (2) develop suitable methods of diagnosis; (3) correlate pathological lesions with specific infections; and (4) develop treatments and control measures in combating any infection implicated in the production of bovine reproductive disorders found in Alabama.
Anim. Dis. 562 (S-30)

La. *Breeding Disorders*. To (1) determine major causes of low conception rates in many herds of cattle, studying individual problem animals; (2) attempt to determine basic cause or causes for high anestrus rate found in La. cows; and (3) investigate effectiveness of various treatments in alleviating conditions found.
Vet. Sci. 765

Maine *Causes and Prevention of Reproductive Failures in Cattle.* To (1) compare methods of inducing heat in cattle (removal of corpus luteum, estrogens and electric stimulation); (2) determine breeding histories, response to treatment and pathology of cystic ovaries; (3) summarize breeding histories and etiological factors relating to retained placenta; (4) compare commercial and University lab. antigens for testing for leptospirosis and vibriosis.
Anim. Path., Anim. Ind. 31

Mass.

Causes and Prevention of Reproductive Failures in Dairy Cattle. To (1) obtain more complete picture of histological characteristics of bovine corpus luteum, cotyledon and placenta than is now available; (2) note more important changes occurring at various ages, at selected stages of estrous cycle, and during early pregnancy; (3) compare histological pattern for normal cattle with appearance of tissues from animals with histories of breeding trouble; (4) use better histochemical methods developed with laboratory animals to study these selected tissues in the cow; and (5) attempt by use of certain hormones to modify normal picture and evaluate differences.

Dairy & Anim. Sci. 33 Coop. ARS

Mich.

A Study of Reproductive Disorders of Livestock, Especially Cattle. To (1) study in cattle nutritional and hormonal factors involved in reproductive disorders, with attempts at correction of these disorders thru nutritional and hormonal therapy; (2) determine effects of variations in preservation and freezing methods on revival rates and fertilization capacity of bull spermatozoa; and cause(s) of failure of semen from certain bulls to withstand low temperature freezing and storage; and (3) develop more practical methods of diagnosis and treatment of bovine trichomoniasis.

Vet. Path. 74

Miss.

Lowered Fertility in the Bovine. To (1) survey reproductive performance of cattle in State Experiment Station System to determine reproductive efficiency for each herd of system and factors contributing to reproductive efficiency; (2) determine nature of sterility in cows leaving herd because of low reproductive performance; (3) propose and test treatments which may increase reproductive efficiency.

Anim. Husb., Vet. Sci. HE-19 (S-10)

N. J.

Studies on Causes and Prevention of Reproductive Failures in Dairy Cattle. To demonstrate the effect of various postpartum treatments upon the reproductive efficiency of dairy cows.

Dairy Ind. 137

Oreg. Sterility in Dairy Cattle. To investigate phases of sterility in dairy heifers and cows such as sterilities caused by possible infection. The use of hormones and surgery will be used in treating affected animals.
Vet. Med. 136

Pa. The Nature of Infertility in Dairy Heifers. (1) Functionally normal, nulliparous heifers, which have been bred repeatedly will be used to determine rate of fertilization 3 days after breeding, rate of embryonic mortality between 3rd and 34th days of pregnancy, and microbial flora of reproductive organs and semen used for insemination of these heifers; and (2) functionally normal and abnormal, nulliparous heifers which have been bred repeatedly will be used to determine frequency and proportional distribution of different types of genital abnormalities and histopathology of reproductive organs and thyroid, adrenal and pituitary glands.
Bact., Vet. Sci., Dairy Sci. 1143

Pa. Corpus Luteum Removal in Subfertile Dairy Cows. To evaluate effectiveness of removing corpus luteum from ovary of repeat breeding cows as means of improving fertility, as measured by induction rate of estrus and ovulation, fertilization rate (3 days after insemination) of ova released following induced estrus, embryonic survival rate (30 days after insemination) of cows conceiving following induced estrus.
Dairy Sci. 1273

R. I. A Study of Sterility in Dairy Cattle with Particular Reference to Certain Infections of the Reproductive Tract. To learn some causes which delay breeding or sterility in dairy animals by; (1) determining the epizoology and etiology of diseases causing sterility; (2) developing preventive and control procedures which will be investigated if any organism producing a definite infection is isolated; and (3) determining influence of treatment on incidence of these diseases of the reproductive tracts.
Anim. Path., Anim. Husb. 302

Vt. *Causes and Prevention of Reproductive Failures in Dairy Cows.* To (1) determine extent and nature of reproductive failures in native dairy herds, including histopathological and microbiological examinations of aborted feti; and (2) develop methods of early diagnosis and prevention.
Anim. Path. 36

Vt. *Causes of Impaired Fertility in the Dairy Bull*. To (1) examine semen samples from bulls of low fertility for specific infectious agents and evidence of pathological changes in reproductive tract; (2) determine effect of varying concentrations of antibiotic agents on semen from bulls of low fertility; and (3) evaluate new antibiotic agents when added to semen diluent.
Anim. Path. 44

W. Va. *Breeding Efficiency of Dairy Cows*. To study (1) failure of cows to conceive with single service; (2) value of hormones as aid to conception; (3) value of physical therapy as aid to conception.
Anim. Husb., Dairy Husb. 33

W. Va. *Causes of Sterility in Cattle*. To study possibility of viruses as a cause of sterility.
Anim. Path., Dairy Husb. 55

Wis. *Factors Involved in Fertilization Failure and Early Embryonic Mortality in Cows of Low Fertility*. To (1) determine phases of reproductive process where most failure occurs; (2) develop methods of diagnosis of cause in herds under field conditions; (3) identify reproductive failures of a particular nature with most likely cause, and (4) develop, on the basis of findings, researches on breeding, nutrition, disease and management to correct existing low fertility.
Anim. Husb., Vet. Sci. 532a Coop. ARS

Wis. *Forage Composition and Crop Management as Related to Reproductive Disorders in Cattle on Marsh Areas in Central Wisconsin*. Survey in detail plant populations in pastures where abortions have occurred and in those where occurrence is seldom; correlate plant species present with same or other species with known adverse effect. Feed experimental animals plants which might cause abortion in cattle. Study management of unfavorable pastures to see if time of pasturing, stage of growth, season, or past treatment may be involved. Experiment with various treatments or seedings to test factors previously shown as sources of difficulty.
Agron., Vet. Sci. 957

Wis.

Forage Composition and Crop Management as Related to Reproductive Disorders in Cattle on Marsh Areas in Central Wisconsin. To (1) establish amount of nitrate needed in feeding trials to cause abortion; (2) verify or refute conclusion that abortions cited may be caused by nitrates; (3) use findings for future work.

Agron., Vet. Sci. 957 Sup.

*Vibriosis

Storrs (Conn.)

Diagnosis and Control of Infectious Causes of Reproductive Inefficiency in Cattle, with Particular Reference to Vibrio Fetus. To (1) conduct basic research on nutritional requirements and serology of V. fetus to improve methods of diagnosis; (2) improve methods of diagnosis, evaluate methods of treating infected bulls, and learn if antibiotic treatment of semen is effective; (3) evaluate vaccines and different methods of vaccination in preventing vibriosis in cows; (4) test for vibriosis in animals other than cows; (5) isolate an infectious agent from cows that abort or require repeated services.

Anim. Dis. 123

Fla.

Vibrio Fetus Infections. To (1) investigate the phenomenon of infection, host-parasite relationship, and immunity of V. fetus infection; (2) develop practical diagnostic tests for the disease; and (3) study methods of its control.

Vet. Sci. 706 (S-30)

Ky.

Vibriosis in Cattle and Sheep. To (1) study characteristics of Vibrio fetus in cultures; (2) develop more reliable methods for diagnosis of vibriosis; and (3) develop a suitable procedure for immunization of cattle against vibriosis.

Anim. Path. 357

La.

Treatment of Vibrio Fetus Infections in Cattle. To evaluate as control measures; (1) chemicals and antibiotics as therapeutic agents; and (2) effectiveness of hygienic measures.

Vet. Sci. 877 (S-30)

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*See also Vibriosis, page 32.

Mich.

Control of Vibriosis and Related Animal Diseases. To (1) determine incidence or prevalence of vibriosis in animals and man in State; (2) evaluate and improve means of diagnosing vibriosis; i.e., serological tests, selective and differential media and animal inoculation procedures; (3) study antigenic characteristics, growth requirements, and morphological variants; (4) determine course and consequences of infection in lab. and farm animals; and (5) devise means of prophylaxis, treatment, and control of vibriosis.

Microbiol., Pub. Heal. 861

Miss.

The Value of Various Inhibitory and Stimulatory Agents for Improving the Methods of Isolation of Vibrio Fetus. To (1) determine whether antibiotics and other inhibitory substances are of value in enhancing the isolation of V. fetus from contaminated sources; (2) devise a solid medium that will afford more rapid growth and longer viability of cultures of V. fetus; and (3) evaluate the membrane filter for the isolation of V. fetus from slightly contaminated sources.

Vet. Sci., Dairy Ind., Anim. Husb. RRFN-2 (S-30)

N. C.

A Study of Some of the Physiological, Serological and Immunological Properties of Vibrio Fetus. To (1) determine growth characteristics of V. fetus as a means for obtaining better isolation procedures, metabolically active resting cells, and stable, standard diagnostic antigens; (2) correlate serum antibody titer with mucous antibody titer and effect of titers on immune state of cows.

Anim. Ind. 34 (S-30)

Pa.

Vibrionic Infertility in Cattle. The (1) establishing of a selective or differential means of isolating Vibrio fetus from infected animals; (2) improving the in vitro growth of V. fetus to facilitate the preparation of an antigen and to expedite laboratory "pure culture" studies; (3) providing a reasonably accurate means of diagnosis of the disease at the earliest possible time after infections; (4) establishing the role of other organisms found in the genital tract as possible symbiants or secondary invaders in bovine infertility; and (5) determining the mode of transmission, route of infection, and factors influencing the establishment of infection and immunity.

Vet. Sci. 1274

P. R. The Determination of the Causative Agents of Infertility in Cattle with Special Reference to Vibrio Fetus Infection in Puerto Rico. Isolate in cattle and study Vibrio fetus to learn incidence.
Anim. Husb. 121 (S-30)

Tenn. Expanded Study and Evaluation of Diagnostic Measures in Vibrio Fetus Infection of Cattle and Sheep. Devise more effective means of diagnosing Vibrio fetus infection thru comparative and expanded study of isolation of organism, agglutination tests on blood serum, agglutination tests on cervico-vaginal mucus.
Vet. Sci. 69 (S--30)

Va. Vibriosis of Cattle and Sheep. To expand knowledge of vibriosis with reference to: (1) characteristics of causative organism, especially differentiation of strains of serotypes and establishment of criteria for pathogenic strains; (2) development of adequate and reliable diagnostic agents, materials and (4) studies of epidemiology and evaluation of control and therapeutic methods and materials.
Anim. Path. 86075 (S-30)

Urolithiasis

Colo. Urinary Calculi (Urolithiasis) of Beef Cattle. To (1) determine influence of nutrition on development of urinary calculi; (2) evaluate methods for prevention and treatment of urinary calculi; and (3) determine physical and chemical properties of urine which favor the development of urinary calculi.
Anim. Dis. 75 (W-41)

Idaho Urolithiasis of Steers. To (1) chemically analyze all available calculi; (2) study urine of animals affected with calculi to attempt to correlate pH of urine and the type of crystals present in urine with the chemical composition of the calculus; (3) correlate temperature, water comsumption, and dietary constituents with incidence of calculi of a particular chemical composition; (4) where control measures seem indicated, run controlled (on premise) trials aimed at preventing calculi formation; (5) study gross anatomy of urinary tract of normal and affected animals to learn if anatomical differences play a mechanical role in obstruction of urinary tract by calculi, emphasize affect of age, of castration and of hormone feeding on diameter of urethra.
Anim. Husb., Chem. 315 (W-41)

Mont. Urolithiasis (Urinary Calculi) of Range Cattle. To (1) determine correlation between physical and chemical properties of urine and development of urolithiasis; (2) determine environmental, physiologic, and anatomic factors influencing obstructions in urinary tract; (3) develop and evaluate methods for prevention and treatment of urolithiasis.
Vet. Res. 1011 (W-41)

S. Dak. Urinary Calculi. To (1) experimentally produce urinary calculi in farm animals; (2) obtain basic information concerning the biochemistry and physiology of urinary calculosis; (3) determine the principal causes of urinary calculi; (4) develop methods of preventing urinary calculi.
Biochem., Anim. Husb. 309

Wyo. Urolithiasis in Ruminants. To (1) study etiology of urinary calculi in ruminant by varying combination of ration as to vitamin A, mineral, water, and urinary infection and in field by correlating type of stone with environment of animal; and (2) evaluate drugs as therapeutic agents in preventing and treating urolithiasis.
Vet. Sci., Agr. Chem. 577 (W-41)

White Muscle Disease

Mont. Nutritional Muscular Dystrophy in Calves. To (1) determine if muscular dystrophy can be induced in calves by avitaminosis E; (2) determine alpha-tocopherol content of milk from cows of beef breeds in herds where calves are affected annually with muscular dystrophy; and (3) observe and obtain data on development of spontaneous muscular dystrophy in calves.
Vet. Res. 905

Nev. The Relationship of Food Accessory Substances and Infection to White Muscle Disease of Calves. To determine relationship of vitamin E or other food accessory substances and inapparent virus or other infections to this disease.
Vet. Sci. 86

Oreg. Determination of Nature and Control of White Muscle Disease. To (1) determine further the nature and relationship of so-called white muscle disease of calves and lambs; (2) determine cause(s) of the disease; (3) develop more rapid and effective methods of diagnosis, particularly in live animals; and (4) develop program for preventing or controlling the disease(s).
Agr. Chem., Anim. Husb., Vet. Med. 175

Other Diseases

Ariz.

Infectious Keratitis in Cattle. To (1) carefully review the bacteriological findings of this department and other stations studying infectious Keratitis; and (2) determine the factor or factors which cause the epithelium of the cornea to become permeable to the bacteriological flora of the eye.
Vet. Sci. 199

Calif.

Characterization and Control of the Diseases Caused by the Virus of Sporadic Bovine Encephalomyelitis. To (1) further perfect current diagnostic tools; (2) study modes of transmission of disease and its pathogenesis in proven outbreaks and in experimental infections; and (3) develop preventive and therapeutic methods of control.
Vet. Sci., Anim. Ind. 1661

Colo.

Necrobacillosis in Cattle and Sheep. To determine (1) pathogenicity of *Actinomyces necrophorus* for healthy liver; (2) pathogenicity of *A. necrophorus* for the healthy bovine larynx and for the larynx previously infected with other organism such as *Pasteurella bovis*; and (3) exact pathologic changes in feet of cattle affected with foot-rot.
Path. & Bact. 73

Colo.

Enterotoxemia of Cattle. To (1) determine what toxins, and particularly which of the toxins of *Clostridium perfringens* may be responsible for several disease manifestations in cattle; (2) study toxogenic bacteria found in digestive system; (3) investigate factors which might be conductive to production of toxins in gastro-intestinal tract; (4) attempt to determine economic importance of disease; (5) determine if any relationship exists between enterotoxemia of sheep and similar conditions in cattle; and (6) investigate possible means of control or treatment.
Path. 76

Ind.

Biochemical Aspects of Milk Fever in Dairy Cattle. To determine (1) factors that control metabolism of Ca and P in dairy cattle and other ruminants; and (2) biochemical abnormalities associated with milk fever.
Vet. Sci., Biochem. 841

Maine

Effects of Feeding Vitamin D_2 on Parturient Paresis in Dairy Cattle. To (1) observe and analyze effect(s) of feeding high levels of vitamin D_2 on incidence of parturient paresis of dairy cows; (2) determine effects of high level feeding of vitamin D_2 on serum Ca and P; and (3) economically evaluate this preventive program as a possible recommended practice to dairy farmers.

Anim. Ind., Anim. Path., Chem. 107

Mich.

The Effect of Diseases in the Cow and Goat on Milk Production. To (1) determine the causes of the complex; and (2) study corrective and management procedures that will aid in controlling the diseases that effect milk production.

Surg. Med. 8

Mont.

Bacillary Ictero-Hemoglobinuria of Cattle. To study pathogenesis and transmission of the disease and improvement in methods of immunization.

Vet. Res. 787

Nebr.

Prevention of Liver Abscesses in Cattle with Aureomycin. To determine (1) effect of oral aureomycin treatments during suckling period in reduction or prevention of liver abscesses in fattening beef cattle; (2) effect of aureomycin in controlling calf scours in beef calves; and (3) relationship of incidence of calf scours observed during suckling period with liver abnormalities when steers are slaughtered after a fattening period.

Anim. Husb. 457

N. Dak.

Rates of Excretion of Chemotherapeutic Agents Administered to the Bovine. To determine (1) rates and routes of elimination of various chemotherapeutic agents, following recognized routes of administration in the bovine; and (2) spectrum of activity of various chemotherapeutic agents for organisms isolated from infectious diseases of the bovine.

Vet. Sci. 16-1

Pa.

The Etiology of Calf Scours and an Evaluation of Control Measures. To determine (1) etiology of calf scours by bacteriological and chemical analysis of contents of digestive tracts of calves; (2) efficiency of certain biological and chemotherapeutic agents; and (3) role of management in control of scours.

Anim. Husb. 1038

Texas

Field Evaluation Studies of Keratoconjunctivitis Bacterin and Biochemical and Other Studies of the Organism Hemophilus Bovis (Moraxella Bovis.) To (1) extend field studies employing keratoconjunctivitis bacterin to learn its efficacy in immunizing cattle under Texas field conditions; (2) determine various cultural characteristics of H. bovis as survival to freezing, lyophilization, reaction in chicken embryos as it affects smoothness and roughness of colonies as well as capsule maintenance and need for X and V factors.

Vet. Med. 1008

Utah

Pathological and Etiological Study of Brisket Disease in Range Animals. To (1) determine etiology of disease; (2) determine nature of disease, symptoms and pathology; (3) determine characteristics of other range areas where brisket disease is known to occur and compare ecological aspect of these areas to Wayne County area; and (4) develop methods of treatment and control.

Vet. Sci. 479 Coop. ARS

DISEASES OF SWINE

Enteritis

Ill.

Enteric Diseases of Young Pigs. To (1) attempt to concentrate causative agent of transmissible gastroenteritis (TGE) by differential ultracentrifugation or other techniques and study agent by electron microscope techniques; (2) study gross and microscopic lesion of TGE; (3) study effects of TGE on metabolism of some dietary nutrients, intestinal secretions and absorption, body constituents, and intestinal motility; (4) attempt to adapt causative agent of TGE to host other than pig and study distribution of agent in body of host; and (5) study chemical composition of stomach and intestine and contents in pigs with naturally acquired gut edema.

Vet. Sci. 70-316 (NC-13) Coop. ARS

Ind. Therapeutic, Bacteriological and Histopathological Studies of Swine Dysentery. To determine (1) cultural and morphological characteristics of a vibrio, the apparent cause of swine dysentery; (2) in vivo effects of various drugs and antibiotics upon vibrio; and (3) effect of vibrio upon intestinal tissue.

Vet. Sci. 469

Ind. Causal Agents and Prevention of Transmissible Gastroenteritis (TGE) in Swine. To (1) isolate and identify agent(s) which cause TGE in swine; and (2) produce protective agents to confer active immunity on the pregnant sow and passive immunity on the baby pig.

Vet. Sci., Biochem. 658 (NC-13)

Mich. Biological and Biochemical Functions of Certain Nutritional Factors in Swine Feeding. Determine effect of (1) various mineral imbalances on swine parakeratosis with particular reference to role of Ca and Zn in etiology of disease as well as effects of these substances on growth and feed efficiency; (2) increasing growth rate and improving feed efficiency thru addition of various chemicals as antibiotics, sulfonamides and other organic compounds; (3) certain feeding methods on growth and feed utilization; (4) nutrition and management on carcass quality.

Anim. Husb., Agr. Chem., Vet. Path. 44

Mich. The Effect of Various Nutrient Factors on the Health and Livability of the Baby Pig. To (1) study nutritive requirements of baby pig; (2) study weight gains or losses on various levels of required nutrient; and (3) observe enteric and/or other lesions resulting from feeding a low level of required nutrient.

Anim. Husb. 62

Mich. The Absorption of Zn in Pigs and Rats as Related to Dietary Calcium and Phosphorus. To (1) study intestinal absorption of Zn in pigs and rats maintained on various levels of dietary Ca, P and perhaps other minerals; (2) study mechanism involved in therapeutic effect of Zn on parakeratosis pigs.

Anim. Husb. 825

Minn.

Edema Disease ("Entero-Toxemia") in Pigs. To (1) determine specific factor or factors responsible for clinical course and pathologic characteristics of disease; (2) develop ways and means to interrupt progress of disease and effect recovery; and (3) develop methods of its prevention and control.
Vet. Med., Anim. Ind. 2622 (NC-13)

Mo.

Swine Enteritis. To study (1) cause(s) of enteritis occurring in swine under State conditions; (2) enteritis in swine due to *Salmonella choleraesuis*; (3) enteritis in swine due to vibrio infections; (4) efficacy of nitrofurans in treating swine enteritis due to *Salmonella choleraesuis*; (5) value of nitrofurans as a preventive agent in control of swine enteritis due to *Salmonella choleraesuis*; (6) value of nitrofurans in the treatment and/or control of swine enteritis due to vibrio infections; (7) value of any other product (on market or to be) for treatment and control of swine enteritis due to Salmonella or vibrio infections.
Vet. Med. 326

Nebr.

Natural Factors Influencing Enteritis in Baby Pigs. To develop methods which would lead to definition of environmental factors responsible for development of non-specific enteritis in baby pigs.
Anim. Path. 473 (NC-13)

N. Dak.

The Relationship of Enteritis to Anemia in Baby Pigs. To determine (1) relationship of enteritis to anemia in baby pigs; (2) causative factors of baby pig anemia and the most feasible corrective measures under field conditions.
Vet. Sci. 16-6 (NC-13)

Hog Cholera

Ind.

Diagnosis and Immunology of Hog Cholera. To (1) develop a practical means for the diagnosis of hog cholera; (2) determine why swine fail to develop sufficient antibodies against hog cholera following propylactic inoculation to resist challenge in nature; and (3) characterize strains of hog cholera virus so that immunological deductions might provide means for the preparation of more satisfactory immunizing material.
Vet. Sci. 706

Minn. Studies on Virus Diseases of Domestic Animals - Virus of Hog Cholera - Other Important Virus Diseases. To (1) obtain fundamental information on physical, chemical, immunological and serological properties of viruses responsible for some important diseases of domestic animals; (2) find improved methods of control thru better agents for immunization; and (3) develop techniques to overcome troubles in differentiating virus diseases.
Vet. Med. 2603

Mo. Hog Cholera Immunization. To (1) study immunity produced by use of Swivax hog cholera vaccine and Swivax vaccine plus anti-hog cholera serum and compare this immunity in hogs fed a low protein diet under dry lot conditions with those fed good diet supplemented with pasture; (2) challenge pigs at 30 days and at 90 days to study amount of immunity produced; and (3) study effects of challenge as indicated by temperature curves, symptoms, and postmortem findings.
Vet. Med. 140

Ohio Combined Use of Hog Cholera Antiserum and Rabbit Propagated Vaccine for Immunization of Young Pigs Against Hog Cholera, and The Development of a Serologic Diagnostic Method for that Disease. To (1) determine value of combined use of hog cholera antiserum and rabbit propagated hog cholera vaccine as protective immunization of young pigs against cholera exposure occurring between time of vaccine administration and that at which vaccinal resistance becomes established; and (2) develop serologic diagnostic test for determining hog cholera infection.
Vet. Sci. 36-1 Coop. ARS

Ohio Development of Passive Immunity in Young Pigs Nursing Hog Cholera Vaccinated Gilts. To (1) study the duration and degree of passive immunity conferred to suckling pigs from gilts vaccinated at 6 weeks of age with serum and virus and also with modified live virus (Rovac); and (2) study the degree of enhancement and longevity of passive immunity in suckling pigs from gilts vaccinated at 6 weeks of age with attenuated virus by inoculation of attenuated virus (Rovac) both before farrowing (latter part of trimester of gestation) and 2 weeks following farrowing.
Vet. Sci. 36-2

Pa.

Technical Problems Associated with State and National Eradication of Hog Cholera. To (1) evaluate certain existing vaccines as to: production of lasting immunity in presence of atypical strains of hog cholera virus, debilitating disease and subclinical diseases, and determination of hazards associated with use of live virus of hog cholera and live virus vaccines; (2) develop new vaccine or improve existing vaccines to provide biologic suitable for use in eradication program; and (3) explore hog cholera virus and cell relationships with emphasis on developing a diagnostic procedure for use in detecting virus of hog cholera.
Vet. Sci. 1204

Other Diseases

Fla.

Pneumonia of Pigs. (1) By clinical, pathological, and epizootiological means, establish nature of pneumonia; (2) characterize etiologic agent (s); (3) develop adequate means of prevention and control of this disease.
Vet. Sci. 874

Ind.

Studies on a Rheumatoid Disease in Swine. To (1) determine cause or causes of disease, methods of spread, in case it is found to be communicable; (2) develop preventive and curative measures; and (3) make some comparisons with rheumatic conditions in the human, particularly as to treatment and comparative pathology.
Vet. Sci. 586

Ind.

Atrophic Rhinitis of Swine. To (1) identify causative agent(s) of rhinitis; (2) develop diagnostic procedures; (3) determine pathogenesis; (4) determine modes of spread; and (5) develop remedial measures.
Vet. Sci. 708 (NC-13) Coop. ARS

Iowa

Determination of the Etiology of Infectious Atrophic Rhinitis. To determine (1) significance of a filterable agent in etiology of disease; (2) role of bacteria in production of turbinate atrophy; and (3) specificity of turbinate atrophy.
Vet. Med. 1289 (NC-13)

Mich.

The Effect of Various Nutrient Factors on the Health and Livability of the Baby Pig. To (1) study nutritive requirements of baby pig; (2) study weight gains or losses on various levels of required nutrient; and (3) observe enteric and/or other lesions resulting from feeding a low level of required nutrient.

Anim. Husb. 62

Mich.

Interrelationships and Roles of Infection and Nutrition in Mortality of Young Pigs. To (1) determine structure and composition of certain body tissues and fluids of healthy pigs; (2) determine susceptibility of young pigs fed adequate and deficient rations to agents causing diseases of respiratory and gastro-intestinal tracts; (3) study structural and compositional changes in certain body tissues and fluids of pigs affected with known nutritional and infectious diseases produced experimentally and occurring under field conditions; (4) elucidate some of relationships between infectious diseases as in (2) and certain nutritional states in pig.

Vet. Path. 844 (NC-13) Coop. ARS

Mo.

Studies on the Prevention of Disease Transmission from Carrier Sows to Baby Pigs. To study prevention of disease transmission from carrier sows to baby pigs, by studying; (1) prevention of enteric and respiratory diseases in young pigs; and (2) effectiveness of bacterin in control of swine erysipelas.

Vet. Med. 175

Nebr.

The Development of Criteria for the Precise Diagnosis of Baby Pig Diseases. To develop (1) criteria for diagnosis of baby pig diseases; and (2) specific projects involving the more important disease conditions which lend themselves to research for the purpose of seeking methods of control.

Anim. Path. 343 Coop. ARS

Nebr.

Disease Control Through Repopulation of Farm Herds with Disease-Free Swine. Develop procedure to eradicate or control swine diseases by repopulation of farm herds with brood stocks which have gone through a disease-free development period.

Anim. Husb., Anim. Path. 520 (NC-13)

N. C.

A Study of an Infectious, Abacterial, Polyserositis with Arthritis Syndrome of Swine. To (1) characterize etiological agent of infectious abacterial, polyserositis with arthritis syndrome of swine; (2) determine pathogenesis of this disease and methods of control.
Anim. Ind. 143

Wis.

Causes of Low Fertility in Swine. To (1) determine phases of reproductive process where failure is most likely; (2) develop methods of diagnosis of causes; (3) identify reproductive failures with their most likely cause; and (4) recommend, on basis of findings, researches on breeding, nutrition, and swine management to correct existing low fertility.
Genet., Anim. Husb. 724

DISEASES OF SHEEP AND GOATS

Vibriosis*

Colo.

The Mechanism of Vibriosis in Sheep. To (1) determine if synergistic agents function with Vibrio fetus in causing the disease; (2) determine physiologic characteristics of V. fetus; (3) determine methods of transmission; (4) develop a vaccine.
Anim. Dis. 166 (W-27)

Idaho

Epidemiology of Vibrio Fetus and Acquired Immunity in Ewes. To (1) study the epidemiology of Vibrio fetus in sheep of Idaho; and (2) determine the immunity acquired by ewes to V. fetus from a previous infection of this organism.
Vet. Sci., Anim. Husb. 301 (W-27)

Mont.

Ovine Vibriosis. To (1) determine role of the ram in transmission of vibrio infection to the ewe; (2) study susceptibility of genital tract of ewe in various stages of sexual cycle to infection with Vibrio fetus; (3) determine nutritional needs of V. fetus in vitro; (4) produce an immunizing agent; and (5) study serological structure of V. fetus antigen and antibodies in order to produce a reliable serological diagnostic test.
Vet. Res. 923 (W-27)

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* See also Vibriosis, page 20.

Utah

Transmission Studies of Vibrio Fetus Infection in Sheep and Cattle. To determine (1) whether breeding rams are carriers of *Vibrio fetus*; and (2) pathogenicity of vibrio organisms isolated from carrier rams by tests of guinea pigs, ewes, rams, and bulls.
Vet. Res. 416 (W-27)

Wyo.

Studies of *Vibrio Fetus*. To determine (1) methods of transmission of Vibrio fetus organism; (2) viability of *V. fetus* organism on various media and at various temperatures; and (3) variability and effects of this variation upon virulence and serological relationships.
Vet. Sci., Bact. 560 (W-27)

Other Diseases

Calif.

The Development and Application of Serodiagnostic Techniques to Studies on Bluetongue. To develop a serological test that will enable a rapid and reliable diagnosis of bluetongue infection in sheep and possibly in other animal species also; and to apply this test in epidemiologic and other bluetongue investigations.
Vet. Sci. 1594

Calif.

Summer Pneumonia in Sheep. To (1) isolate and determine role of infectious organisms associated with pneumonia; (2) evaluate influence of environmental factors on occurrence and progress of disease; (3) delineate pathogenesis of disease; (4) clarify epidemiology in infected animals; (5) develop methods of control and prophylaxis.
Vet. Sci. 1716

Mich.

Pregnancy Disease of Ewes. To (1) determine tissue changes in experimentally produced and naturally occurring cases of pregnancy disease; (2) obtain data on causative factors producing pregnancy disease and methods of early diagnosis, treatment, and prevention; (3) obtain additional data on complex mechanism of carbohydrate metabolism in ruminant and its relationship to pregnancy diseases of ewes.
Vet. Path., Anim. Husb., Agr. Chem. 866

Mont. *Methods of Control of Mastitis in Sheep*. To work out practical methods of preventing the occurrence of mastitis in sheep.
Vet. Res. 36

Mont. *The Relationship of Lip-and-Leg Ulceration of Sheep and Venereal Disease of Sheep to a Virus Which Has Been Demonstrated to be Present in the Lesions of Venereal Disease*. To determine the causative agents of lip-and-leg ulceration and venereal disease.
Vet. Res. 765

N. Dak. *Listeriosis of Animals*. To determine effects of stress factors and viral infections on the pathogenesis of *Listeria monocytogenes*.
Vet. Sci. 16-5

Wash. *A Study of Bluetongue Virus*. Develop a serological test for the diagnosis of bluetongue virus in sheep and cattle, make comparison of living and killed virus vaccines in laboratory animals and ruminants, and make random testing for bluetongue virus in vector populations in Northwest.
Vet. Sci., Anim. Ind. 1268 Coop. ARS

DISEASES OF HORSES AND MULES

Ky. *The Etiology, Pathology, Epizootiology, and Control of Diseases of Equine Fetuses and Foals*. To (1) identify and characterize agents, factors, and conditions responsible for abortion of fetuses or illness and death of foals; (2) study physiological and pathological changes in aborted fetuses and sick or dead foals; (3) study bionomics of infectious agents implicated in diseases of equine fetuses and foals; and (4) investigate means for prevention and treatment.
Anim. Path. 354

DISEASES OF POULTRY

Bacterial Diseases

Mo. *Salmonellosis in Turkeys*. To (1) determine ability of Terramycin or its vehicle to raise titres; (2) determine fate of standard, and variant *S. pullorum* when injected into healthy housed turkeys; (3) secure poults naturally infected with *S. pullorum* to determine period of time they are shedders of *S. pullorum*, and period during which they carry titres.

Vet. Med. 176

N.C. *An Investigation of the Role of the Thyroid and Adrenal Glands in the Resistance of Chickens to Fowl Typhoid*. To determine (1) effect of thyroxin, iodinated casein, thiouracil, adrenal cortical extracts, and adrenalin on resistance of chickens to infection with *Salmonella gallinarum*; (2) how these hormones and drugs affect antibody titers; and (3) morphological and histological changes occurring in various endocrine and lymphatic glands of experimental groups.

Poul. 98

N.C. *The Effect of Diet on the Bactericidal Action of Chicken Blood Plasma*. To determine the effect of (1) source and level of protein in chick diets on bactericidal action of chicken blood plasma against *Salmonella pullorum* and *S. gallinarum*; and (2) supplementing high and low protein diets with antibiotics, antioxidants, and combinations of these on bactericidal action of chicken blood plasma.

Poul. 99

N.C. *The Vitamin Requirements of Chicks for Maximum Resistance to Fowl Typhoid*. Determine optimum levels of vitamins for maximum resistance to fowl typhoid.

Poul., Vet. Sci. 100

N.Dak. *The Effect of Simultaneous Infections with Pasteurella Multocida and the Pleuropneumonia-Like Organisms (PPLO) in Chickens*. To (1) determine the morbidity and mortality of simultaneously infected chicks with *Pasterurella multocida* and PPLO; and (2) compare weights and carcass grade of birds infected with *P. multocida*, PPLO, and a combination of the two compared with non-infected controls.

Vet. Sci. 16-2 (NC-6)

S.C. The Control of Salmonella Infections in Chickens and Turkeys. Compare effectiveness of Chloromycetin, other antibiotics, and drugs, alone and in combination for control of Salmonella infections, particularly fowl typhoid and paratyphoid.
Poul. 91

S. Dak. The Control of Fowl Cholera. To (1) determine cultural, biochemical, serological characteristics, virulence and antigenicity of Pasteurella multocida from poultry and other species as a basis of selection of strains or challenge exposures and for antigens; (2) explore efficacy and application of agglutination test for detection of infected carrier birds; and (3) evaluate antibiotic, chemotherapeutic biological agents in prevention and control of fowl cholera.
Vet. Sci. 141 (NC-6)

Tenn. Evaluation of Antibiotics in the Control of Salmonellosis in Poultry. To (1) determine the effect of antibiotic materials in the feed upon establishing or preventing infection; (2) determine the effect of antibiotic materials in the feed upon establishing or preventing the carrier state; and (3) determine the relation of Salmonellas of chickens to production and the carrier state.
Poul. Husb. 145

Utah Staphylococcosis of Turkeys, Etiology, Pathogenesis, Transmission, and Methods of Control. To (1) find or develop means of control of staphylococcosis through the use of antibiotics and biological agents (vaccines, toxoids); (2) determine the transmission of staphylococci in turkey flocks by field study of birds and premises from day old to slaughter and by laboratory study by cohabitation and artificial introduction of the disease; (3) learn more of the basic nature of the etiological agent by developing better typing methods, by determining toxin production and pathogenicity and by studying immune response of vaccines and toxids; (4) study the portal of entry of the staphylococci into the bird and the development of pathological changes by whole cultures, toxins and by the interaction of other disease agents; and (5) determine the effect of certain nutritional factors on the incidence of staphylococcosis in turkeys.
Bact., Poul. Husb., Vet. Sci. 450

Va. A Control Program for Paratyphoid in Chickens and Turkeys. To (1) develop workable program based on blood testing of fowls used for breeding; (2) learn if Salmonella organism capable of infecting fowls is contained in food; and (3) learn what can be accomplished by use of drugs in reducing losses as well as carriers of this infection.
Vet. Sci. 86072 Coop. ARS

Leucosis Complex

Ind. The Transmissibility of Avian Visceral Lymphomatosis to Mammals. To (1) maintain a constant and uniform source of inocula for use in transmission experiments in mammals by serial passage of known highly virulent strains of avian visceral lymphomatosis, and for storage of tumor material at sub-zero temperatures; (2) transmit highly virulent strains of avian visceral lymphomatosis to both laboratory and farm mammals, particularly those in which spontaneous cases of a closely comparable neoplastic condition occur naturally, such as mice, cattle, swine, and sheep, but also to such other mammalian species as are available; (3) increase susceptibility of young mammals to the virus of avian visceral lymphomatosis; (4) transmit highly virulent strains of avian visceral lymphomatosis to mammalian embryos; (5) if transmission directly to young mammals or to mammalian embryos appears to be impossible as the experiments progress, more indirect transmission through chick or other avian embryos or through tissue cultures in mammalian fetal tissues, or both in several steps, to young mammals or mammalian embryos will be attempted; and (6) transmit lymphoid tumors from mammals to chickens.
Vet. Sci. 737

Mich. Contamination of Virus Vaccines. To investigate the possibilities of (1) agent of the avian leucosis complex being present in embryonated eggs used for production of virus vaccines; and (2) transmitting the agent of the avian leucosis complex as a contaminant in virus vaccines, Newcastle disease live virus vaccine in particular, produced with embryonated eggs.
Bact. 466 (NC-6) Coop. ARS, Natl. Cancer Found.

N. C.

Developing Inbred Lines of Single Comb White Leghorns and Their Utilization in Hybrids Resistant to Leukosis. To (1) further inbreed the North Carolina Experiment Station Single Comb White Leghorn Line, NC 1, and to develop other inbred lines from different origins to learn more of the effects and responses of strains to inbreeding; and (2) produce hybrids, by crossing these lines or lines from other stations, with superior performance and resistance to leukosis.

Poul. Husb. 95 Coop. ARS

N. C.

The Influence of Physiological, Pharmacological, and Nutritional Factors on the Development of Transmissible Tumor Strain RPL 12 in Chickens. To (1) determine and characterize changes brought about by the tumor in certain "key" glands and organs; and (2) determine factor(s) affecting establishment, growth and regression of transmissible tumors.

Poul. Sci. 102

N. Dak.

The Influence of Avianized Rabies Virus on the Susceptibility of Fowls to Development of the Leucosis Complex. To determine incidence of leucosis in chickens given intramuscular injections of rabies virus after its passage through chick embryos.

Vet. Sci. 17

Ohio

Viruses of the Leukosis Complex - Studies on Control and Treatment. To (1) determine if the work done at the Regional Laboratory in the use of live virus for immunization of chickens against lymphomatosis can be applied under Ohio conditions; (2) determine if an inactivated or attenuated lymphomatosis virus vaccine can be produced; (3) determine if it produces immunity in chickens; (4) determine if its use will reduce the incidence of infection in a commercial breeding flock; and (5) use other drugs in the treatment of the disease as they become available from time to time.

Vet. Sci. 143

Pa. Growth Characteristics and Antigenic Properties of the Agent of Avian Visceral Lymphomatosis. To (1) study cultivation of the virus of avian visceral lymphomatosis in embryonated chicken eggs and tissue cultures of avian lymphoid tumor cells; (2) determine effect of virus on normal chicken cells in tissue culture; (3) evaluate oncolytic activity of certain animal viruses on avian lymphoid tumor cells *in vivo* and *in vitro*; (4) determine antibody response in the adults following inoculation with avian visceral lymphomatosis virus and the immunity levels of chicks from inoculated hens by serum neutralization and serological techniques; and (5) develop immunity by the use of attenuated or killed preparation of the virus.
Vet. Sci. 1312

Respiratory Diseases

Ala. Respiratory Diseases of Poultry. To (1) determine factors influencing the invasiveness of the pleuropneumonia-like organism; and (2) develop an improved antigen for use in CRD diagnostic and control programs.
Vet. Sci., Poul. Husb. 569 (S-34)

Ark. Immunization as a Control Measure of Respiratory Diseases of Poultry. To study (1) existing immunization procedures used to control respiratory diseases in Arkansas with reference to types of vaccine used, host reaction, antibody response and ease of administration; and (2) new methods of immunization and new agents as to type of vaccine, ease of administration, host reaction and antibody response.
Anim. Ind., Vet. Sci. 373 (S-34)

Calif. Diseases of Chickens Particularly Those Involving the Respiratory System. To (1) determine importance and frequency of occurrence of fowl pox; (2) improve vaccines for diseases other than Newcastle, and conduct studies with present-day vaccines for optimum times and sequence to produce a serviceable immunity; (3) conduct limited research on lymphomatosis; (4) by hematological studies, investigate methods for differentiating between non-specific diseases and isolate etiological agents; (5) determine incidence, significance, and characteristics of miscellaneous diseases in chickens infected with respiratory disease; and (6) incidence of protozoan diseases, particularly coccidiosis, and its relation as a stress factor in air sac infection.
Vet. Sci. 1014 Coop. ARS

Calif.

Transmission of Infectious Sinusitis of Turkeys Through Hatching Eggs. To determine if pleuropneumonia-like organisms are transmitted through egg from infected adult female turkeys and thus result in lowered hatchability and post-hatching infections of the poults.
Vet. Sci. 1578 (W-5)

Calif.

Pleuropneumonia-Like Organisms (PPLO) of Chickens and Turkey Origin. To (1) clarify role of PPLO in production of diseases of chickens and turkeys; and (2) determine differences in pathogenicity of various PPLO encountered in poultry tissues.
Vet. Sci. 1757 Coop. ARS

Calif.

Nature of Ornithosis in Turkeys and Chickens and Methods for Control and Prevention of the Disease. To (1) develop a simple and more rapid test for detecting birds infected with ornithosis; (2) determine if strains of the agent isolated from mild outbreaks of ornithosis can be enhanced in virulence to induce infections in poults or chickens characterized by a more severe form of the disease, high toxicity, and higher mortality; (3) determine source, mode, and spread of ornithosis in turkeys under controlled conditions; (4) determine efficiency of antibiotics in preventing and eliminating ornithosis in infected flocks; (5) determine if turkeys of normal flocks displaying low titers to ICF test are suffering from an active subclinical form of ornithosis or that the serological reactions are caused by some other factor; and (6) determine if pathogenic or non-pathogenic organisms in turkeys produce antibodies capable of cross reacting with ornithosis ICF test procedure.
Vet. Sci. 1758 Coop. ARS

Calif.

The Relationship between Laryngotracheitis (LT) and Other Respiratory Diseases of Chickens. Determine interrelation of two or more agents on the course and severity of LT and immunity produced by LT vaccines in the presence of other infections.
Vet. Sci. 1770 (W-5)

Storrs
(Conn.)

Respiratory Diseases of Poultry. To study (1) epizootiology, diagnosis and control of major respiratory diseases (CRD, IB, ND), with emphasis on their interaction in the field, (2) IB and ND water vaccination for duration of immunity and minimum immunizing dose; (3) specific histopathology of these diseases in birds and embryos; (4) investigate serology of CRD, with a view toward establishing clean flocks, (5) examine domestic fowl for ornithosis and other new respiratory agents.
Anim. Dis., Poul. Sci. 121 (NE-5)

Del. Immunization Against Chronic Respiratory Disease. To develop immunity in broiler chicks against disease syndrome called Chronic Respiratory Disease.
Anim. & Poul. Ind. 46 (NE-5)

Idaho Viability of Pleuropneumonia-Like Organisms (PPLO) Associated with Chronic Respiratory Diseases of Poultry. Determine length of time PPLO from poultry will remain viable on different materials under different controlled environmental conditions. Learn infectivity of PPLO from different materials held for periods under their survival time.
Vet. Sci. 298 (W-5)

Ill. Evaluation and Standardization of Pleuropneumonia-Like Organisms Hemagglutination-Inhibition Tests for the Diagnosis of Chronic Respiratory Disease. To (1) evaluate and standardize tests for diagnosis of chronic respiratory disease; (2) study relation of the organisms to sinusitis in turkeys; and (3) determine possibility of coexistence of viruses with organisms.
Vet. Med., Poul. Ind. 70-305 (NC-6)

Ind. Modes of Spread of Newcastle Disease. To (1) determine if English sparrows become infected in nature by Newcastle disease virus; (2) develop means of "unmasking" the virus from its specific, infectivity-neutralization antibodies, and to obtain better understanding of infected carrier problem in Newcastle-recovered chickens or other hosts; and (3) assess possible relationship of weak or a typically transient hemagglutination by the virus to such factors as certain characteristics of chicken or other avian embryos in which the virus is grown, section of virus populations, potential to produce disease, etc.
Vet. Sci. 383 (NC-6)

Ind. Evaluation of Methods of Control of Infectious Bronchitis in Laying Chickens. To (1) determine incidence and effects of naturally occurring infectious bronchitis in laying hens in selected areas in State and seek explanations for differences found; (2) evaluate some commercial vaccines for degrees of usefulness in supressing infection.
Vet. Sci. 852 (NC-6)

Iowa Studies on Newcastle Disease. To (1) obtain information on modes of spread, severity of disease, virus strains, value of hemagglutination-inhibition test in detecting antibodies against Newcastle disease virus, as compared to virus neutralization test in eggs tested; and (2) determine if there are virus carriers among chickens that have recovered from Newcastle disease.
Vet. Med. 1027 (NC-6)

Kans. Properties of Newcastle Virus and of the Agents of Other Respiratory Diseases of Poultry. To study properties of Newcastle virus and agents of other poultry respiratory diseases with the view of finding suitable strains or modifying existing strains so that they can be used in preparation of more satisfactory vaccines.
Bact. 317 (NC-6)

Ky. The Control of Newcastle Disease and Complicating Respiratory Infections of Poultry. To (1) investigate and develop procedures for differential characterization of agents, factors, and conditions involved in respiratory diseases of poultry; and (2) study immunologic behavior of infectious agents involved in poultry respiratory diseases in relation to control procedures.
Anim. Path. 355 (S-34)

Maine Respiratory Diseases of Poultry. To learn better methods of diagnosis and control of infectious bronchitis, chronic respiratory disease, Newcastle disease, and any viral bacterial, or other agents causing respiratory disease of broilers, replacement chicks, and laying hens.
Anim. Path. 25 (NE-5)

Md. Investigations of Newcastle Disease in Poultry: Respiratory Disease of Poultry. To (1) determine antibody response of mammals to Newcastle disease as measured by serum-neutralization, complement-fixation, and hemagglutination-inhibition tests; (2) determine efficacy of immune serum in preventing Newcastle disease in exposed birds; and (3) conduct further studies with Newcastle disease vaccines with emphasis on killed-virus types.
Anim. Path. D-52 (NE-5) Coop. ARS

Mass. Respiratory Diseases of Poultry with Emphasis Given to Infectious and Chronic Respiratory Disease. To study various aspects of infectious bronchitis and chronic respiratory disease and possibly other respiratory infections as they may arise.
Vet. Sci. 111 (NE-5)

Mass. Respiratory Diseases of Poultry. To (1) determine factors influencing the immune response in chickens to B_1 Newcastle disease virus and other strains; and (2) study properties of immunogenic agents as the latter are administered under varied field conditions.
Vet. Sci. 112 (NE-5)

Minn. The Control of Chronic Respiratory Disease and Related Respiratory Infection. To conduct research on respiratory diseases of poultry: protection from death losses, protection from interruption in production.
Vet. Med. 2617 (NC-6) Coop. ARS

N. H. The Isolation and Control of Chronic Respiratory Disease (CRD) in Chickens and the Relationship to the Satisfactory Immunization with Newcastle Disease and Infectious Bronchitis Vaccines. To (1) improve isolation procedures so study may be made of further strains of the CRD complex; (2) study epidemiology, biological, immunological, and serological aspects of the disease; (3) determine if the mechanics of Newcastle disease and infectious bronchitis vaccination by various methods have any effect on incidence of CRD complex.
Poul. Husb. 78 (NE-5)

N. H. Control of Poultry Pathogens. To (1) devise better methods of cultivating avian viruses and pathogens in tissue cells; (2) determine how these superior tissue culture methods may be applied to laboratory problems concerning fastidious poultry pathogens; and (3) determine how methods may be applied in survey and eventually in control of poultry diseases.
Poul. Husb. 118

N. J. Problems Associated with Live Virus Vaccination Against Newcastle Disease. To (1) determine if all strains from same outbreak are of same relative pathogenicity; and (2) determine what other virus vaccines can be applied simultaneously with Newcastle vaccine, and (3) investigate cause of so-called "breaks" in vaccination.
Poul. Husb. 678 (NE-5)

N. Y. Control of Newcastle Disease and Allied Respiratory Diseases in Poultry. To (1) develop practical vaccine for control in infectious bronchitis, the vaccine to be of low pathogenicity and non-interferring with egg production of older birds; (2) clarify the etiology of the chronic respiratory diseases in chickens; and (3) appraise value of live-virus Newcastle vaccines on market at present.
Path., Bact. 170 (NE-5)

N. C. A Search for a Viral Agent or Agents which May Be of Etiological Importance in the Production of Air Sac Infection in Poultry. To (1) determine incidence of a specific viral immunity among approximately 150 stored serum samples obtained from Chatham County broilers during 1955-56; (2) make same determinations on serum samples to be collected in poultry disease diagnostic laboratory and in field; (3) try to isolate same or similar viruses from local flocks with and without air sac infection; and (4) ascertain characteristics of an available virus and of new isolates.
Poul. 93 (S-34)

Ohio Chronic Respiratory Disease (CRD) in Chickens and Turkeys. To (1) evaluate and possibly improve serological tests with which infected or carrier birds can be recognized; (2) establish and maintain birds free of pleuropneumonia-like organisms (PPLO) by use of the serological test and/or cultural methods; (3) determine whether chicks hatched from eggs of the above birds can be maintained free of PPLO, and in this connection, determine if infection can be transmitted by other than via eggs and direct contact; (4) determine the length of time that infected hens will continue to produce PPLO infected eggs and the percentage of eggs affected; (5) determine the effectiveness of various disinfectants in preventing the spread of CRD; and (6) evaluate antibiotics or other drugs in the treatment of CRD and particularly the effectiveness of such agents in eradicating the carrier state.
Vet. Sci. 142 (NC-6)

Oreg. Viability of Infectious Bronchitis Disease Virus Under Variable Controlled Conditions. To determine survival limits of Infectious Bronchitis Virus subjected to variable controlled environmental conditions to be able to judge the possible survival of Infectious Bronchitis Virus in nature.
Vet. Med. 27-7 (W-5)

Oreg. Efficacy of Serum-Agglutination Plate Test in Detecting Pathogenic Pleuropneumonia-Like Organism (PPLO) Carriers. To determine (1) correlation of serum-plate agglutination test and isolation of PPLO from poultry; and (2) pathogenicity of isolates recovered.
Vet. Med. 27-8 (W-5)

Oreg. Nature and Control of Ornithosis in Birds. To determine (1) nature of Ornithosis in free-flying birds as well as domestic birds; (2) incidence and nature of Ornithosis virus in birds that react to various biological tests for Ornithosis; (3) factors related to transmission of Ornithosis in domestic birds; (4) effectiveness of therapeutic agents in eliminating Ornithosis virus from infected birds.
Vet. Med. 346 (W-5)

Pa. Effects of Infectious Bronchitis on the Blood Chemistry of Chickens and Egg Quality. To (1) determine any possible changes in levels of certain mineral and organic constituents of blood of chickens with infectious bronchitis; (2) correlate altered levels of these constituents with quality and quantity of eggs produced; and (3) determine mineral content of egg shells from normal and infected birds and relate to blood chemistry.
Vet. Sci., Agr. & Biol. Chem., Poul. Husb. 1148B

Pa. Differential Diagnosis of Avian Respiratory Diseases. To develop serological procedures for differentiation of principal avian respiratory diseases.
Vet. Sci. 1203 (NE-5)

R. I. The Study of a Chronic Respiratory Infection of Chickens and Turkeys Distinct from Newcastle, Infectious Bronchitis and Other Recognized Infections. To (1) study occurrence, spread, and control of this infection in broilers and replacement birds; (2) improve diagnostic procedures and propagation methods; and (3) determine importance of this infection in "air-sac" syndrome of chickens.
Anim. Path. 401 (NE-5)

R. I. A Study of Infectious Bronchitis of Chickens and Other Closely Indistinguishable Infections. To (1) evaluate and improve, if possible, on virus currently used and various immunization programs used by poultrymen; and (2) study egg embryo inoculation methods in identifying field outbreaks of respiratory diseases.
Anim. Path. 402 (NE-5)

R. I. Newcastle Disease. Study the modification and isolation of the causative agent to (1) determine extent of modification derived by skin adaption of the virus and effect of additional skin passages on modification; (2) further evaluate intradermal test, using skin adapted virus, as means of determining individual immunity to Newcastle disease; (3) study other applications of skin adapted virus; and (4) study virus isolation methods on field cases submitted to the laboratory.
Anim. Path. 403 (NE-5)

S. C. The Control of Egg-Transmitted Pleuropneumonia-Like Organisms (PPLO) in Poultry Flocks. To (1) determine effects of medication of a PPLO infected breeder flock in reducing or preventing egg transmission of these organisms; (2) observe effect of Newcastle disease and infectious bronchitis vaccination on progeny of medicated and non-medicated breeders; and (3) determine length of time that progeny of medicated breeders remain free of PPLO and their antibodies under natural and isolated conditions.
Poul. 336 (S-34)

Tex. The Chronic Respiratory Disease and Ornithosis of Chickens and Turkeys in Relation to the "Air-Sac" Infection Problem. To determine (1) properties of causative agent as to biochemical and serological behaviors as they affect diagnosis and identification of strains; (2) modes of transmission; (3) value of medicinal agents to treat the condition; and (4) antibody response in relation to this infection and possibility of developing serological diagnostic procedures.
Vet. Med. 905 (S-34) Coop. ARS

Tex. Control of Newcastle Disease and Complicating Respiratory Infections of Poultry. To (1) evaluate methods of immunization against Newcastle disease and Infectious Bronchitis, particularly as it pertains to dual vaccination procedures; (2) develop better procedures for isolation of the virus and determine infectivity and virulence of various strains that might be used as immunizing purposes, to devise methods for its preservation and to study its reaction to chemical physical agents; (3) investigate means of the spread of the disease and practical methods for preventing, supressing, or eradicating it, including sanitation, management and immunization of infected and non-infected flocks through the use of modified and/or inactivated virus; and (4) consider clinical behavior of the disease, particularly its differentiation from other infectious or nutritional diseases showing similar or identical clinical symptoms.
Vet. Bact. 951 (S-34)

Utah

Chronic Respiratory Disease of Chickens and Its Relation to Other Respiratory Diseases of Chickens and Turkeys. To determine (1) cause of chronic respiratory disease of chickens and how it is transmitted; (2) methods of control through either management or treatment; (3) where disease exists in Utah and to differentiate it from other respiratory diseases; and (4) if chronic respiratory disease is associated with other respiratory diseases of chickens and if so, what part each plays in the pathogenesis of respiratory disorders.
Vet. Sci. 388 (W-5)

Va.

Control of Respiratory Diseases of Fowls Other than Newcastle Disease. To (1) determine cause of a respiratory malady which is affecting large numbers of broilers especially in the Delmarva area; (2) determine possible relation, if any, to the so-called "air-sac colds", bronchitis, and other known diseases; and (3) develop control measures by the use of various prophylatic and therapeutic agents which become available or can be developed.
Anim. Path. 86017 Coop. ARS

Va.

Control of Respiratory Diseases of Poultry. To investigate (1) feasibility of establishing and maintaining flocks of chickens which are free from PPLO; (2) influence of other infectious agents, singly, and in combination with PPLO, as Crawley agent, bronchitis virus, Newcastle virus, and coliform organisms; and (3) control by vaccination and antibiotics.
Anim. Path 86025 (S-34) Coop. ARS

Wash.

Egg Transmission of Infectious Sinusitis of Turkeys and Chronic Respiratory Disease of Chickens. To (1) determine circumstances under which egg transmission takes place; and (2) develop methods of detecting disease in living fowl, working toward eradication of disease in breeding flocks.
Vet. Sci. 1319 (W-5) Coop. ARS

Wash.

Procedures for Detecting Infectious Sinusitis Carrier Turkeys. To evaluate (1) dermal sensitivity test for detection of infectious sinusitis carrier turkeys; (2) HI antibodies in sera of turkeys infected with infectious sinusitis as a means of detecting infectious sinusitis carrier birds; and (3) anamnestic reaction in detection of infectious sinusitis carrier birds which elicit a low agglutination titer.
Vet. Sci. 1323 (W-5)

Wash. *The Significance of Transovarially Transmitted Antibodies Against Avian Pleuropneumonia-Like Organisms*. To (1) measure amounts of PPLO antibodies in egg yolk to determine amount of passively transmitted antibody at intervals through laying cycle; (2) determine rate of decline of serum antibody levels in newly hatched chicks to the age these antibodies are no longer present; and (3) determine protective value of possible transmitted antibodies against challenge with virulent PPLO.
Vet. Sci. 1399 (W-5)

W. Va. *Control of Chronic Respiratory Disease (CRD)*. To determine (1) reliability of plate agglutination test for detecting carrier state in breeder flocks for CRD, caused by PPLO; (2) PPLO carrier status of a flock of breeder hens by use of a serological test and cultural examination; (3) if chicks from parents positive to serological test and cultural examination for PPLO are positive and if reverse holds true for chick of negative parents; and (4) effect of stress on chicks from positive and negative parents with regard to development of CRD syndrome.
Anim. Husb. 53 (NE-5)

Wis. *Control of Newcastle Disease and Other Virus Diseases of Poultry*. To derive new information and principles for effective control of Newcastle disease based on properties of the virus, immunology, diagnosis, and spread of the disease.
Poul. Husb., Vet. Sci. 711 (NC-6) Coop. ARS

Other Diseases

Ark. *Etiology and Control of Condition in Broilers Characterized by Sternal Bursitis*. To (1) determine nature of causative agent; (2) ascertain effectiveness of drugs presently available in controlling the disease; and (3) study relation between incidence of malady and environmental factors as temperature, condition of litter, and possible stress factors.
Anim. Ind., Vet. Sci. 426

Calif. The Etiology and Nature of the Avian Hepatitis-Synovitis Syndrome in Chickens and Turkeys and Methods for Diagnosis, Control and Prevention of Disease. To (1) determine etiological nature of hepatitis-synovitis syndrome; (2) develop a reliable diagnostic test for detection of this disease; (3) study variations of disease due to different strains of organism isolated from field outbreaks; (4) determine origin and mode of spread of this disease; and (5) develop methods for the control and prevention of this disease.
Vet. Sci. 1756

Calif. Diagnosis, Pathogenesis and Prevention of Avian Encephalomyelitis in Chickens. To (1) develop a practical diagnostic procedure; (2) study pathogenesis of the disease; and (3) develop a truly modified strain of AE virus to be used as a vaccine.
Vet. Sci. 1763

Ind. The Etiology of Aplastic Anemia (Hemorrhagic Syndrome) in Farm Animals. To determine the etiology of aplastic anemia in farm animals and birds.
Vet. Sci. 859

Kans. Enteric and Respiratory Disease Studies (Including Psittacosis) of Poultry, and Transmission of Disease and Parasites by Game and Pet Birds to Farm Fowl. To (1) prevent diseases of enteric group by environmental sanitation; (2) study psittacosis as it relates to the entire poultry production program; and (3) evaluate significance of game and pet birds as they relate to poultry production.
Bact. 392

La. A study of Hematology in the Normal Broiler and Those Infected with Viruses Affecting the Respiratory Tract. To (1) study effect of respiratory diseases of virus origin on blood picture of broilers; and (2) study value and application of observations as diagnostic tools.
Vet. Sci. 906

Mass. *Infectious Synovitis in Chickens and Turkeys*. To (1) study etiologic agent, growth on artificial media and tissue culture, and cultural methods for diagnostic aid; (2) study pathologic effects of agent in egg embryos; (3) study hematologic and pathologic effects of agent in growing birds; (4) study epizootiology of disease; (5) study natural and artificial determinations of possible egg transmission; and (6) develop preventive and therapeutic control.
Vet. Sci. 114

Mass. *Avian Infectious Hepatitis*. To study (1) etiologic agent: growth on artificial media and tissue culture and cultural methods for diagnostic aid; (2) pathologic effects of agent in egg embryos as a diagnostic aid; (3) hematologic and pathologic effects of agent in chickens under experimental and field conditions; and (4) epizootiology of disease; and (5) preventive and therapeutic control measures.
Vet. Sci. 150

Mass. *Avian Encephalomyelitis*. To (1) survey field flocks to determine immune or susceptible status; (2) isolate field strains of virus causing avian encephalomyelitis for vaccine preparation; (3) prepare effective vaccines and find suitable and effective means of administration; and (4) make comparative evaluation of vaccines and vaccination procedures.
Vet. Sci. 153

Mich. *Fundamental Virus Research I -- Viruses of the Respiratory Tract of Poultry*. To (1) study the optimum conditions for isolation of the virus from the host, propagation in embryonated chicken eggs, and an evaluation of serological and infectivity tests for identification of the virus; (2) the immunogenicity of strains of the virus will be studied through the use of serological and challenge exposure tests of the host at certain time intervals following infection with virus; (3) efficacy of serological tests and the time and rate of antibody development will be studied; and (4) qualitative and quantitative differences in the antigenic structure of the viruses will be studied through serological procedures.
Anim. Ind., Bact. 75-I

N. J. *Atherosclerosis and Lipid Metabolism in the Aging Process of the Fowl.* To study relationship between atherosclerosis, non-specific mortality, reproductive efficiency, and aging in the fowl.
Poul. Husb. 562

Ohio *Causes and Prevention of Hemorrhagic Disease in Chickens. 1. Nutritional Aspects.* To study effects of feeding various nutrients and drugs, alone and in combination on the incidence, prevention, and cure of hemorrhagic disease.
Poul. 126-1

Ohio *Causes and Prevention of Hemorrhagic Disease in Chickens-Clinical and Pathological Aspects.* To (1) study eitology of hemorrhagic syndrome including fungi, bacteria, viruses, toxic drugs, and by-products of metabolism; (2) study pathology and hematology associated with hemorrhagic syndrome; and (3) study distribution, economic significance and control of hemorrhagic syndrome.
Vet. Sci. 126-2

Ohio *A Study of the Etiology, Transmission and Control of Blepharoconjunctivitis (Turkey Eyelid Necrosis).* To (1) study the etiology of a condition termed blepharoconjunctivitis (turkey eyelid necrosis); (2) study the pathology and hematology of this condition; and (3) upon determining the etiology, study the mode of transmission and methods of control.
Vet. Sci. 144

Va. *The Cause and Control of So-Called "Pullet Disease", Blue Comb, or Non-Specific Enteritis of Chickens and Turkeys.* To (1) determine cause of a disease complex which produces a non-specific enteritis in chicks and poults, so-called "pullet disease" or "blue comb" in mature chickens and an ill-defined enteritis in turkeys; (2) determine relation, if any, between the disease which occurs in chickens and that in turkeys; and (3) develop control measures using prophylatic and therapeutic agents which become available or which can be developed.
Anim. Path. 86051

Va. *Cause and Control of An Avian Hepatitis-Synovitis Syndrome.* To (1) determine nature of etiological agent and possible effect of some nutritional factors which may be involved; (2) determine its possible relationship to other prevalent poultry diseases; (3) develop a control program based on early recognition of disease, which may involve development of new tests as well as treatments; and (4) investigate arthopod vectors as possible transmission agents.
Anim. Path. 86091

W. Va. *Avian Infectious Anemia-Synovitis.* To study (1) etiology, pathogenesis; (2) predisposing factors as diet, infectious bronchitis, Newcastle disease, and medicants, symptoms and pathology, species susceptibility; (3) treatment, prevention and immunology; (4) diagnosis; and (5) egg transmission.
Anim. Husb. 88 (NE-5)

PARASITES OF CATTLE

Ariz. *Internal Parasites in Range, Pasture and Feedlot Cattle.* To (1) identify parasites affecting these cattle; (2) study seasonal egg-count variations; (3) study injuries caused by parasites to various aged cattle; and (4) evaluate various control methods.
Anim. Path. 422

Ark. *Gastro-Intestinal Parasites of Ruminants in Northwest Arkansas.* To determine (1) type and extent of parasitic infestions in Northwest Arkansas in relation to climate, plant environment, soil, etc.; (2) influence of such livestock management practices as controlled time of parturition and other factors; and (3) effectiveness of existing and new materials as anthelmintics.
Anim. Ind., Vet. Sci. 378 (S-21) Coop. ARS

Ark. *Cattle Grub Control.* To develop a more satisfactory method of controlling cattle grub with particular emphasis on controlling the adult or newly hatched larvae.
Ent. 432

Fla. *Control of the Larva and Ova Stages of Parasitic Nematodes of Domestic Animals.* Determine safety and efficiency of chemicals in control of the larva and ova stages of nematodes of domestic animals while on grass or in the soil of pastures and feed lots. Culture manure from infected cattle, sheep and swine and use resulting larvae or ova *in vitro* testing of chemical compounds suspected of or known to have nematocidal action, as Heptochlor, Dowfume N, Dowcide G. Calcium cyanamide, etc.
Vet. Sci. 795 (S-21)

Ga. *Effect of Pasture Management on Control of Internal Parasites of Cattle.* To determine the degree and type of internal parasitic infections as found under different systems of pasture management and devise control measures if and where needed.
Anim. Dis. 4 Coop. ARS

Ga. *Ecology of Cattle Nematodes on Pasture Crops and Certain Nutritional Factors That May Influence Internal Parasite Survival or Development in the Animal.* To (1) investigate viability, development and distribution of cattle nematodes on various types of forages and the influence of microclimatic factors; (2) investigate relationships between cattle performance (weight gains, grazing habits) under various pasture management conditions and larval accessibility and infectivity to the cattle; and (3) study nutritional factors of forage, or total ration as they influence host susceptibility and/or parasite survival and development.
Anim. Dis. 60 (S-21) Coop. ARS

Ga. *The Anthelmintic Effect of Phenothiazine and Other Drugs on Parasites of Ruminants.* To (1) compare different methods and drugs in treating parasitized cattle as to their efficacy; (2) study management and environmental conditions predisposing to clinical parasitism in the Coastal Plain area; and (3) collect more accurate data on prevalence of parasitism in cattle and losses therefrom.
Anim. Ind. 213 (S-21)

Hawaii *A Study of Helminth Infection of Cattle During Their First Year of Growth.* To determine (1) abundance and type of parasites in cattle under natural conditions during first year of life; and (2) from data, relation of infection to climatic and managemental conditions.
Parasitol. 912.7 (W-35)

Idaho

Types and Incidence of Internal Parasites in Wild Ruminants and Their Transmissibility to Domesticated Ruminants. To determine (1) the types and incidence of internal parasites in wild ruminants; (2) the types and incidence of internal parasites in domestic ruminants; and (3) the transmissibility of internal parasites of wild ruminants to domestic ruminants.
Vet. Sci. 299 (W-35) Coop. ARS

Ky.

Gastro-Intestinal Parasites of Ruminants. To (1) determine type and extent of infections of internal parasites in domesticated Kentucky ruminants; (2) observe parasitic infections in relation to climate, soil, plant environment and other factors; and (3) study resistance of ruminants to infections with internal parasites.
Anim. Path. 356 (S-21) Coop. ARS

La.

Parasites of Cattle. To determine (1) more effective and economic methods of control of gastrointestinal parasites of cattle; and (2) additional details of life cycles and their relation to the chemical and physical surroundings of adults and larvae.
Vet. Sci. 374 (S-21)

Mich.

Gastrointestinal Parasites of Cattle. To determine species of internal parasites occurring and the incidence of parasitism in Michigan cattle, and the probable losses due to parasitism in Michigan cattle.
Microbiol. & Pub. Heal., Vet. Path. 850

Miss.

Investigation of the Interrelationship of Type of Pasture and Internal Parasitism in the Production of Beef Cattle in Mississippi. To observe the degree and relative numbers of internal parasites acquired by cattle grazed on different kinds of winter pasture crops in different soil areas to be able to control parasites.
Vet. Sci. HN-2 Coop. ARS

Mo.

Internal Parasites of Ruminants. To (1) evaluate present methods of control of internal parasites in ruminants; (2) determine efficiency of present anthelmintics; (3) study effects of some newer anthelmintics on gastro-intestinal parasites; and (4) determine relative disease-producing powers and histopathology of certain gastro-intestinal parasites in ruminants, under Missouri conditions.
Vet. Med. 108

Mont. *The Bionomics of Eimeria Zurnii*. To (1) determine minimum sporulation temperature of *Eimeria zurnii* oocysts under controlled laboratory conditions; (2) determine survival of oocysts outdoors during various seasons of the year; and (3) supplement information on life cycle of *E. zurnii* during phase in which they are parasitic on epithelial cells of intestine.
Vet. Res. 54

Mont. *The Self-Limitation of Coccidiosis in Cattle.* To obtain experimental evidence regarding self-limitation of coccidiosis in cattle and relation of self-limitation to "winter coccidiosis" in range cattle of Intermountain Region of U. S.
Vet. Res. 963 (W-35)

Nebr. *Parasitology of Nebraska Livestock*. To (1) study epizootiology of internal parasites; (2) investigate ecology of pre-parasitic stages of helminth parasites; (3) determine effects of parasitism on host animals; and (4) investigate possible role of internal parasites of disease organisms.
Anim. Path. 462 Coop. ARS

Nev. *The Prevalence and Effect of Internal Parasites of Cattle and Sheep*. To (1) determine species and incidence of internal parasites of sheep and cattle and effects of such on host; and (2) outline practical and effective control measures.
Vet. Sci., Anim. Ind. 9 (W-35)

N. C. *Gastro-Intestinal Parasites of Ruminants*. To (1) determine type and extent of parasitic infections of cattle in State in relation to soil and climatic conditions and age of animals; (2) determine effect of selected drugs with anthelmintic properties upon the spread of gastro-intestinal parasites from animal to animal; evaluate anthelmintic drugs in a parasitic control program of calves; (3) study pathology caused by a single selected species of parasite when present in pure infections; and (4) develop a method of culturing *Ostertagia ostertagia in vitro* through life cycle.
Anim. Ind. 27 (S-21)

Okla. *Relation of Pasture to Infection of Cattle with Gastro-Intestinal Parasites*. To determine (1) relation between gastro-intestinal parasitism in cattle on pasture and parasitic larval infestation of pasture as influenced by rainfall, atomspheric temperature, nutritive character of pasture, number of cattle on pasture, and degree of parasitic infection; and (2) nutritive requirements of calves for recovery following treatment of gastro-intestinal nematodes with anthelmintics.
Vet. Res. 867 (S-21)

P. R. *The Effects of Internal Parasites on the Efficiency of Dairy Cattle with Special Reference to Fasciola Hepatica.* To (1) test the efficiency of various liver function tests, in detecting liver-fluke infections, and in demonstrating progressive liver dysfunction as a result of liver-fluke infection; (2) determine the incidence of infection in *Lymnaca cubensis*, the natural intermediate host of *F. hepatica*; (3) determine if other mollusks are possible intermediate hosts of *F. hepatica*; (4) attempt to maintain and culture the snail in the laboratory and thereby facilitate study of the mollusk's biology; (5) study the liver-fluke's biology, thereby leading to a better understanding of its pathology and treatment; and (6) determine what are the effects of treatment (against liver-fluke infections) on the cattle's performance, especially in subsequent milk production.
Anim. Husb. 47

P. R. *Gastro-Intestinal Parasites of Ruminants.* To (1) determine type and extent of parasitic infections in dairy cattle and goats of Island; and (2) attempt to establish life-cycle of *Thysanosoma actinioides* Diesing, 1935, an intestinal tapeworm affecting goats.
Anim. Husb. 103 (S-21)

S. C. *Internal Parasites in Cattle and Sheep in South Carolina.* To (1) determine various species of internal parasites in cattle and sheep in South Carolina; (2) determine extent and importance of parasitism in cattle and sheep in selected areas of South Carolina; and (3) relate parasitic infections to climate, soil, plant environment, and other factors; and (4) control parasitism.
Zool. & Ent. 57 (S-21)

Tex. *Development of Effective and Economical Methods of Control of Gastro-Intestinal Parasites of Cattle on Gulf Coast Pastures.* To (1) determine at what age or ages beef calves should be treated with phenothiazine for best weight gains; and (2) develop a satisfactory and economical low-level phenothiazine program for control of gastro-intestinal parasites of beef cattle.
Vet. Med. 457

Tex. The Efficiency and Toxicity of Various Chemicals and Formulations Used as Anthelmintics in Farm Animals. To determine (1) toxicity of various chemotherapeutic agents on non-parasitized animals; and (2) effect periodic administration of phenothiazine and possibly other anthelmintics on unweaned beef calves maintained on an adequate nutritional intake and to obtain data as to the parasite load on unweaned beef claves as maintained at the Lufkin Station.
Vet. Parasitol. 697

Tex. Management of Cattle as Related to Parasite Fauna and Parasitic Infections in Texas. To (1) determine which parasites of cattle are of greatest economic importance and relate prevalence of these to soil topography and climatic condition with reference to areas other than the Gulf Coast; and (2) evaluate influence of rotational grazing, supplementary feeding, and fencing of marshes on parasitic infections in cattle in such a way that topographical regions are represented.
Vet. Med. 1104 (S-21) Coop. ARS

Utah Trichomoniasis, Coccidiosis and Other Parasitic Diseases in Ruminants in Utah. To (1) obtain in bovine trichomoniasis data on physiology of the parasite and its interrelationships with other trichomonads, and on methods of diagnosis and treatment in order to develop improved methods of control; (2) determine host-parasite relations in bovine coccidiosis and obtain data on the factors affecting experimental infections with *Eimeria zurnii*, life cycle of *E. zurnii* and other species of coccidia, and importance of clinical and subclinical infections with coccidia in causing retardation of growth; (3) evaluate certain drugs in the prevention and treatment of coccidiosis; (4) obtain data on relationship of degree of parasitism to condition of range and management practices in cattle, sheep, deer, and elk, and learn interrelationships among parasites of cattle, sheep, deer, and elk; and (5) determine the incidence and evaluate the importance of trichomoniasis in cattle, coccidiosis in cattle and sheep, and of other parasitic diseases of cattle, sheep, deer, and elk, and the effect of environmental conditions (irrigated pasture vs. unirrigated pasture, range on feed lot) on degree of parasitism and the losses caused by parasites.
Zool., Vet. Sci. 452 (W-35) Coop. ARS

Va. A Study of the Incidence, the Control, and the Economic Importance of Helminth Parasites of Cattle in Virginia. To (1) investigate incidence of various species of helminth parasites in cattle; (2) study biology including morphology, life cycles, longevity in host, pathology, and residual longevity on pastures; and (3) obtain information on control methods and treatments used. (Study includes lungworms of sheep and cattle.)
Anim. Husb., Anim. Path. 86031

Va. Bionomics and Control of Certain Insect Pests of Cattle. To (1) obtain information on life history and habits of common species of cattle lice in State and evaluate methods and materials for their control; (2) determine most economical and effective control of house fly in dairy barns; (3) evaluate methods and materials for control of blood-sucking flies; (4) study life history and habits of cattle grub and evaluate most effective control; and (5) evaluate losses caused by these insects in Virginia.
Ent. 86070

Wash. Action of Chemo-Therapeutic Agents on the Metabolic Activity of Nematode Larvae. To determine O_2 uptake, *in vitro*, of larvae cultured from feces with: inorganic solution, with and without added glucose; with inorganic solution, with and without added glucose plus phenothiazine extracts; with glucose plus extracts of feces with and without phenothiazine.
Vet. Sci., Anim. Husb. 1240 (W-35)

Wyo. Cattle Grub and Lice Control with Systemic Insecticides. To determine effectiveness of (1) systemic insecticides for cattle grub control; and (2) various systemics for lice control.
Ent. 700

Wyo. Ecology of Intestinal Roundworms of Cattle. To determine (1) the survival of the eggs and larvae of *Ostertagia orloffi* and *Cooperia surnabada* under varying environmental conditions; (2) whether calves are susceptible to infection with *Nematodirella longispiculata*; (3) the effectiveness of trolene and other systemics in removing species of intestinal nematodes infecting cattle in Wyoming; and (4) the intestinal roundworms infecting cattle raised on prairie pastures.
Ent., Anim. Ind. 717

PARASITES OF SWINE

Ark. *The Effect of Internal Parasites, Nutrition, and Their Interrelationship in Swine*. To (1) study the growth and nutrition of swine in the presence of induced and natural infection by internal swine parasites; (2) determine value of various compounds in preventing losses from parasites; and (3) evaluate pathology of these infections and recommend measures to be taken by producers to prevent losses.

Anim. Ind., Vet. Sci. 474

Md. *A Study of the Presence and Control of Internal Parasites in Swine*. To (1) compare efficiency of various anthelmintics and evaluate effects of such compounds on health and rate and efficiency of gain in swine; (2) study possible necessity of establishing new recommendations for control of ascarid and other intestinal parasites; (3) study efficiency of anthelmintics in control of non-helminthic types of worms; and (4) study seriousness of non-helminthic types of internal parasites and efficiency of various compounds in controlling such parasites; test effects of such compounds on health, and rate and efficiency of gain in swine.

Anim. Husb. C-24

Va. *Internal Parasites of Swine in Southeastern Virginia - Pathology, Prevention, Control, and Treatment and the Complicating Disease Situation*. To (1) investigate conditions existing in southeastern Virginia which account for prevalence of swine parasites, kidney worms and roundworms; (2) develop management system based on modification or combination of BAI's plan to control swine-kidney worms and upon McLean County System to control ascariasis in swine; and (3) determine effectiveness of newer drugs in removing parasites from infected swine.

Anim. Path. 86009

Wis. *Relationship of Roundworm Migration to Swine Enteritis in Young Pigs*. To (1) determine cause, prevention, and control of enteric disease of young pigs; and (2) explore chronology of enteric diseases in pigs with respect to arrival of worm parasite larvae.

Vet. Sci. 776 (NC-13)

PARASITES OF SHEEP AND GOATS

Calif. Pathogenesis of Ostertagia Circumcincta in Sheep. To obtain information on mechanism of disease production in more important parasitic helminths of ruminants, and try to elucidate and understand effect of these parasitic helminths on these physiological processes; (1) protein in metabolism, (2) mineral metabolism, (3) acid-base equilibrium, and (4) hematopoiesis.
Vet. Sci. 1636 (W-35)

Colo. The Chemotherapeutic Control of Infections of Dictyocaulus Viviparus in Cattle. To determine efficacy of cyanacethydrazide against infections of *Dictyocaulus viviparus* by (1) ascertaining limitations of efficacy in regard to time of medication following exposire and limitations of efficacy in regard to severity of initial exposure; (2) comparing efficacy of oral and intramuscular routes of treatment with cyanacethydrazide; (3) evaluating cyanacethydrazide medication in low level infections; and (4) determine degree of immunity retained following cyanacethydrazide therapy.
Anim. Dis. 230 (W-35)

Ill. Control of Sheep and Cattle Parasites. To study various chemotherapeutic practices in the control of sheep parasites.
Vet. Med. 40-335

Miss. The Acquisition and the Control of Internal Parasites of Sheep Managed by Natural Grazing Conditions of the Deep South. To determine (1) rate of acquisition of gastro-intestinal parasites by lambs; (2) extent to which early lambs and late lambs become infected with internal parasites before they are marketable; and (3) when early and late lambs should be dosed with chemotherapeutic agents to control internal parasites.
Vet. Sci., Anim. Husb. RRFN-1 (S-21) Coop. ARS

Mont. Bionomics of Nematodirus Sp. To obtain additional information on the biology and bionomics of Nematodirus sp. an intestinal work often associated with diarrhea in lambs.
Vet. Res. 55

Nev. Control of Internal Parasites of Sheep on Irrigated Pastures. To (1) devise methods of control and suppression of internal parasites of sheep maintained continuously on irrigated pastures 6-7 months per year; (2) develop pasture rotation system suitable to irrigation conditions; (3) determine types of forage mixtures giving greatest carrying capacity and more suited to geographic and soil conditions; (4) determine system of drug treatment combined with pasture rotation and treatment of irrigation water to keep internal parasites suppressed; and (5) evaluate effectiveness of anthelmintic drugs under operating conditions.
Vet. Sci. 73

N. Dak. The Effect of Gastrointestinal Round Worms on the Utilization of Various Substances in Lambs. To determine effect of gastrointestinal round worms on the utilization of protein, P, Ca, Na, and K in lambs.
Vet. Sci. 16-4

S. Dak. The Life History, Distribution and Control of the Fringed Tapeworm of Sheep in South Dakota. To (1) workout the life history of *Thysanosoma actinioides*, the fringed tapeworm of sheep; (2) determine methods of control, which cannot be done properly until the life history is known; (3) determine the distribution of the fringed tapeworm in South Dakota; (4) determine the economic importance of the fringed tapeworm in South Dakota; and (5) determine to what extent, if any, antelope serve as reservoir hosts for the fringed tapeworm on the sheep ranges of western South Dakota.
Zool., Ent. 260

PARASITES OF HORSES AND MULES

Ky. Parasites of Horses. To (1) study efficacy and toxicity of continuous daily administration of phenothiazine in control of parasitic infections of horses; (2) investigate therapeutic activity and toxicity of ascaricidal agents in the horses; and (3) investigate occurrence and control of bots in the horse.
Anim. Path. 353

PARASITES OF POULTRY

Ala. Blood Groups and Genetic Correlations Related to Specific Diseases of the Chicken. To determine (1) blood group antigens in several populations of chickens differing in natural resistance to lymphomatosis and coccidiosis; (2) relation of blood group antigens to inheritance of resistance to lymphomatosis and coccidiosis; and (3) genetic correlations among degrees of natural resistance to diverse etiological agents under uniform environment and uniform technical procedures.
Poul. 117

Ala. Breeding and Immunizing Chickens for Resistance to Coccidiosis. To breed strains resistant to cecal coccidiosis (Eimeria tenella) and to develop a method of immunizing baby chicks against that disease.
Poul. Husb. 511

Ark. Coccidiosis in Domestic Fowl. To study methods of coccidiosis control for (1) broilers; (2) replacement flocks.
Anim. Ind., Vet. Sci. 425

Kans. Biology and Control of Endoparasites of Poultry. To (1) study the parasitism of poultry in Kansas in respect to degree of parasitism, kinds of parasitism, management practices in relation to parasitism, breeds and age of poultry, and geographical location; (2) study the importance of blackhead disease in chickens and investigate the etiological agent or agents; (3) do basic research into host-parasite relationships using the chicken and its intestinal ascarid as research tools, this study will include factors influencing worm burden in poultry; and (4) continue the study of resistance of animals to parasitism using the chicken and its parasites as research tools.
Zool. 537

Mass. Genetic Resistance to Histomonas Meleagridis Infestation in the Turkey. To (1) determine if inherent resistance to blackhead is present or can be developed in the turkey by selection; (2) determine relative heritability of resistance to blackhead, if such can be demonstrated; and (3) study physiological background for any genetic resistance that might be developed.
Poul. Husb. 104

Mich. Coccidiosis in Chickens and Other Internal Parasites of Importance. To (1) study new drugs which become available for control and treatment of internal parasites of poultry, particularly the coccidia; and (2) effects of nutrition on course of parasitic infections in poultry particularly the coccidia and Ascaridia galli as they may affect the control of the parasites.
Microbiol. 57

Oreg. Determining Dosage of Eimeria Necatrix Required to Produce Immunity and Length of Time Required to Develop Immunity to This Type of Coccidia. To determine the minimum dosage of Eimeria necatrix required to provide a practical protection against a severe challenge with E. necatrix. Further, to study the length of time required for immunity to develop following immunizing dosages of E. necatrix.
Vet. Sci. 27-2

Oreg. Field Testing of Coccidial Cultures for Artificially Immunizing Chickens in Commercial Poultry Flocks. To determine factors involved in a program of artificially immunizing chickens on commercial farms against common species of coccidia; study types of feeders, arrangement of brooding space, number of chicks per brooder, and variations in dosage of different species of coccidia.
Vet. Med. 27-3

S. C. External Parasites of Poultry, Their Biology, Distribution and Control. To (1) survey external parasites present in State, and learn distribution of each; (2) study biology of certain species and relate this to control practices; (3) study effectiveness of newer insecticides; (4) study effectiveness of control by insecticides used as systemics; and (5) study toxicity of newer insecticides to various classes of poultry.
Ent., Zool. 134

Tenn. Drugs in the Control of Internal Parasites of Poultry. To (1) compare efficiency of existing vermifuges and drugs or combinations of materials in relieving parasitic burden in digestive tract of chickens; and (2) study effect of various vermifuges and potential vermifuges upon chickens.
Poul. Husb. 141

Va. The Biology and Control of Certain Insects Associated with Poultry. To (1) obtain information on life histories, distribution and habits of more important insects and mites associated with poultry in Virginia; (2) apply biological information to development of improved control techniques; (3) evaluate new insecticides for control power; and (4) conduct studies basic to use of systemic insecticides for control of arthropods.
Ent. 86086

Wis. A Study of Means of Controlling Coccidiosis in Poultry. To study (1) method of immunizing or vaccinating chickens quickly and at low cost as they come from the incubator; (2) effectiveness of present preventives, and new ones which may be found that could be used in flocks when only a few which have developed coccidiosis may contaminate the entire flock; (3) amount of moisture litter can contain and yet not allow coccidia oocysts to develop and become infective; (4) importance of controlling nematode and cestode parasites in flocks not immune to coccidiosis; (5) whether or not turkeys weakened by coccidiosis are more susceptible to other diseases; (6) development of resistant strains; and (7) what breeds, if any, are less susceptible to coccidiosis.
Vet. Sci., Poul. Husb., Zool. 335

MISCELLANEOUS PARASITES

Ala. A Survey of the Parasites of Pondfishes in Alabama and Their Control. To (1) determine species, relative abundance and seasonal distribution of protozoan, helminth and arthropod parasites affecting pondfish; (2) determine effects of parasites on growth and mortality of pondfishes; and (3) develop methods for control of more important fish parasites.
Zool., Ent. 426

Nebr. Biology, Ecology and Control of the Stable Fly. To (1) determine biology and ecology of stable fly; and (2) develop more practical measures for its control.
Ent. 442

N. J. *Mosquitoes in Relation to Agricultural Production and Veterinary Science*. To (1) evaluate effect of mosquitoes on production of meat, milk, and animal products in certainp parts of State and development of procedures for reducing economic loss; (2) define importance of mosquitoes in management of equines in State and research on systemic and surface repellents for use with animals; and (3) clarify role of mosquitoes in transmission of virus and protozoan diseases of domestic birds and animals to determine reservoirs of such diseases.
Ent. 212

Okla. *The Control of External Parasites*. To (1) develop effective repellents to protect animals from external parasites, especially those with resistance to common toxicants; (2) evaluate effectiveness and hazards of new chemicals as pest toxicants; (3) determine best methods to apply insecticides to animals, especially automatic sprayers, rubbing posts and treadle machines; (4) obtain biological data to assist in above objectives; and (5) obtain adequate data indicating gains to be expected from parasite control.
Anim. Husb. 593

Pa. *Serological Studies of Coccidia*. To determine immunological reactions of rabbits infected with *Eimeria stiedae* (Coccidium oviforme). Immediate investigations will be detection of immune substances and immunization of rabbits against coccidiosis.
Bact. 1182

Pa. *Insect Pests of Livestock*. To (1) review the life history patterns of insects associated with livestock and to determine which stage of development is most susceptible to control measures; (2) study the rate at which the insect pests of livestock develop resistance to insecticides; and (3) investigate new insecticides and new techniques of their application for control of insect pests affecting livestock and the effect of such procedures on the animals.
Zool., Ent. 1261

W. Va. *Arthropods Affecting Livestock in West Virginia. - Their Distribution and Control*. To conduct a survey and collecting program to determine kinds, distribution, incidence and economic importance of pests of livestock in the State.
Pl. Path., Ent. 79

TOXICOLOGY

Ariz. Range Livestock Losses from Poisonous Plants. To study (1) plants causing livestock losses, particularly in southern Arizona limestone hills; (2) distribution of poisonous plants; (3) factors causing development of poisonous conditions; and (4) conditions causing livestock to consume poisonous plants.
Agron., Anim. Path. 171

Ill. Study of the Pharmacologic Activity of Certain Chemical Pesticides. To study (1) effect of chlorinated naphthalenes on pigs; (2) the possible toxic effects of combinations of certain agricultural chemicals on laboratory or other animals.
Vet. Med. 70-328

Mich. Toxic Effects of Urea in Cattle Rations. To determine (1) symptoms, tissue changes, and value of specific treatments for acute urea toxicity in cattle; and (2) possible tissue changes in cattle produced by feeding a relative high level of urea over an extended period.
Vet. Path. 848

Mo. Forage Poisoning Caused by Drought. To (1) develop a quick chemical test to predict if forage would be toxic to farm animals; (2) determine if the toxicity of forage declines after ensiling; and (3) study physiological effects of high nitrate intake on farm animals and investigate ways of counteracting the effects.
Chem. 247

S. Dak. Selenium Poisoning. To (1) obtain basic information on biochemistry and physiology of selenium toxicity in animals; (2) determine with laboratory animals methods to counteract toxicity of selenium; (3) adapt information now available and that obtained through objective two on factors which alleviate selenium toxicity in small animals for use in farm animals; (4) explain metabolism of selenium by plants, to establish chemical forms of selenium in plants and determine toxicity of compounds isolated; and (5) adapt basic information obtained from plant, geologic and soil studies in past to practice or mapping seleniferous land in detail.
Biochem. 19-R

S. Dak. The Control of Selenium Poisoning in Poultry. To determine what substances will prevent or decrease selenium poisoning in turkeys.

Poul. Husb. 28-R

S. Dak. Nitrate Poisoning. To (1) study accumulation of nitrates in oats, corn, and other plants and determine factor(s) responsible; (2) determine if there is a relation between NO_3 poisoning and other forage poisonings, particularly cornstalk poisoning; (3) determine effect of 2,4-D and other herbicides on uptake and metabolism of NO_3 and other forms of N by plants; (4) investigate livestock water supplies for NO_3 content; (5) determine minimum NO_3 content of water sufficient to induce methemoglobinemia in ruminant animals in absence and presence of feeds containing nitrate N; and (6) develop control and preventive measures and develop additional antidotes for NO_3 poisoning.

Biochem., Vet. Sci. 87-R

Tenn. A Study of the Poisoning of Cattle Pastured on Fescue. To (1) determine incidence of "fescue poisoning" in Tennessee; (2) determine clinical, hematological and post-mortem symptoms of "fescue poisoning"; (3) attempt to experimentally reproduce disease and attempt to isolate causative factor; and (4) obtain information on method of reducing or eliminating incidence of "fescue poisoning".

Agron. 44

Tex. Distribution, Abundance, Economic Importance and Control of Poisonous Plants on Range Lands. To (1) obtain information on distribution and abundance of plant species toxic to range livestock; (2) secure and compile data on losses of livestock on basis of species, season and area involved; (3) secure for each species data on nomenclature, description, distribution of sites of infection, toxic nature etc., and methods of control; (4) determine toxic species when and if losses warrant, by field investigations and feeding experimentation; and (5) determine by field experiments, quantitative and seasonal control data on chemical control of toxic species in problem areas.

Range and For. 608

Tex. The Ecological Relationships, Economic Aspects and Chemical Control of Coyotillo in Texas. To determine (1) impact coyotillo has on ranch industry in terms of classes of livestock lost, season of loss, management and control used by operators on infested pastures; (2) distribution, plant associations, and related ecological factors; and (3) by lab and field experiments, method(s) most effective for chemical control.

Range and For. 608-1

Tex. The Chemistry of the Poisonous Plants of Texas. To (1) isolate and identify chemical compounds responsible for harmful properties of poisonous plants growing on range; (2) determine effect of season of year and weather conditions on amount of poisonous substances contained in plants; and (3) develop antidotes against these chemical substances. Guajillo, Bitterweed, Broomweed, Paper flower, Oak bud poisoning, and Careless Weed will be fractionated.
Biochem & Nutr. 919

Utah Fluorosis in Plants and Animals. To determine (1) extent and distribution of fluorosis in plants and animals in selected areas of Utah; (2) if increased levels of grain, Ca, and P, and aluminum salts will help to alleviate symptoms of fluorosis in dairy cattle; (3) if dairy cattle can be raised in areas where fluorides are in atmosphere; (4) by survey on animals, if fluorosis in animals in increasing or decreasing; (5) toxic level of fluorides for young dairy cattle; (6) by autopsies and histopathological studies on animals with varying degrees of fluorosis; and (7) by survey, if fluoride residue is decreasing on plants in Utah County.
Chem., Anim. Husb., Bot & Pl. Path. 364

Utah The Effects of Residues of Newer Insecticides on Health. To determine (1) under controlled conditions if insecticide residues appear in human foods of animal origin in toxic quantities, when farm animals consume feeds containing residues of Endrin, Heptachlor and other new insecticides; (2) effects of residues on calves fed milk from cows which have been fed insecticide hay, and when fed known amounts of insecticides mixed with feed; and (3) histological changes in tissues of various species of animal when fed different insecticides.
Anim. Husb., Chem. 424 Coop. NIH

Utah *The Effects of Fluorides on Certain Enzymes Present in Selected Plant and Animal Tissues*. To (1) investigate general physiological basis of fluorine toxicity in plants, including effects on water relations of leaves, toxicity symptoms, respiration, and photosynthesis; (2) determine effects of different levels of soluble fluorides on esterases, phosphorylases, transphosphorylases, phospho-isomerases, dehydrogenases, and enzymes involved in metabolism of carbohydrates in selected plant tissues of known genetic origin; (3) determine effects of different levels of soluble fluorides on esterases, phosphorylases, transphosphorylases, phospho-isomerases, dehydrogenases, and enzymes involved in metabolism of carbohydrates in selected animal products, blood, bone marrow, liver, kidney, heart, and other muscles of various farm animals fed under known conditions; and (4) correlate possible changes in enzyme systems with histo-chemical changes which occur in plants and animals exposed to different levels of soluble fluorides.

Bot.& Pl. Path., Chem 457

Wyo. *A Chemical Study of Pinus Ponderosa Needles in Relation to Poisoning of Cattle*. To (1) determine by experiment if rabbits or guinea pigs can be used for assay purposes; (2) make fractionation and chemical study of pine needles; and (3) make characterization of pine needle volatile oils and lipids.

Agr. Res. Chem. 643

Wyo. *The Toxic Effects of Sublethal Amounts of Potassium Nitrate on Animals*. To determine (1) effects of diets containing sublethal amounts of potassium nitrate and/or potassium nitrite on pregnant animals and on lactating animals and their young; and (2) growth rate of animals on diets containing sublethal amounts of potassium nitrate and/or potassium nitrite

Agr. Res. Chem., Vet. Sci., Agron. 675

Wyo. *Chemical Examination of Stanleya Bipinnata and Astragalus Pectinatus.* To (1) separate, purify, and study chemical and physical properties of major selenium compounds and some of important non-selenium containing compounds present in *Stanleya bipinnata* and *Astragalus pectinatus*; (2) identify compounds isolated and purified above; and (3) attempt a therapeutic treatment to counteract effects of isolated selenium-containing compounds.
Agr. Res. Chem. 677

Wyo. *Studies on Selenium Metabolism in Animals*. To (1) determine and isolate the compound or compounds formed *in vivo* from tissues of animals injected with selenium; (2) study various methods which can be used for isolating seleno-compounds; (3) determine and localize selenium within the cells by separating the various cell components; and (4) determine the site of action of selenium.
Agr. Res. Chem. 711

Wyo. *The Effect of Seleniferous Feed on Sheep.* To study (1) the effect of selenium on reproduction, growth, and feed lot performance of sheep; and (2) the pathological effect of selenium and its concentration in specific body tissues under varying conditions.
Vet. Sci. & Bact., Agr. Res. Chem. 715

REGIONAL PROJECTS

NC-6 The Control of Newcastle Disease and Other Respiratory Diseases of Poultry. To investigate respiratory diseases of poultry for the purpose of improving the control methods of each disease. The major areas of study are as follows: (1) mode of spread; (2) immunization; (3) properties of the causative agents; (4) diagnosis; (5) economic loss; and (6) therapy.

Contributing projects: Ill. VI-C, Ind. VI-C, Iowa VI-C, Kans. VI-C, Mich. VI-B, Minn. VI-C, N. Dak. VI-A, Ohio VI-C, S. Dak. VI-A, Wis. VI-C.

NC-13 Death Losses in Young Pigs. To determine (1) cause, prevention and control of enteric disease of young pigs, metabolic factors and infections (bacterial, viral and parasitic); and (2) cause, prevention and control of atrophic rhinitis.

Contributing projects: Ill. III-A, Ind. III-A, Ind. III-C, Iowa III-C, Mich. III-C, Minn. III-A, Nebr. III-A, Nebr. III-C, N. Dak. III-A, Wis. VIII.

NC-27 Causes and Control of Bloat in Ruminants. To (1) determine the physical and chemical characteristics of alfalfa and Ladino clover and fattening rations associated with bloat; (2) determine the physical and chemical characteristics of rumen ingesta from normal and bloated animals; (3) study the physiologic responses of ruminants to bloat-producing feeds, chemicals and procedures; and (4) develop and elucidate measures for the control of bloat.

Contributing projects: Ind. II-B, Iowa II-B, Mich. II-B, Minn. II-B, Ohio II-B, S. Dak. II-B.

NC-34 The Mucosal Diseases of Cattle. To determine the cause, prevention and control of the Mucosal diseases of cattle. The major areas of study will include: (1) identification of the causative agent; (2) characteristics of the disease; (3) modes of spread; (4) host range; and (5) immunization and therapy.

Contributing projects: Ind. II-G, Mich. II-G, N. Dak. II-G, S. Dak. II-G, Wis. II-G.

NC-44 Shipping Fever of Cattle. To (1) study clinical characterization of the disease to improve diagnosis; (2) determine infectious causative agent(s); (3) determine and evaluate predisposing factors; (4) establish the pathogenesis of the disease; and (5) develop satisfactory prophylactic and therapeutic measures.

Contributing projects: Ill. II-H, Minn. II-H.

NE-5 Respiratory Diseases of Poultry. To (1) determine the epizootiology, and to develop more effective methods of diagnosis and control of Chronic Respiratory Disease and/or Air Sac, Infectious Bronchitis, and Newcastle Disease; (2) ascertain the biology of the etiological agents relative to all phases of their behavior; and (3) identify new respiratory disease syndromes.

Contributing projects: Conn. (Storrs VI-C, Del. VI-C, Maine VI-C, Md. VI-C, Mass. VI-C, N. H. VI-C, N. J. VI-C, N. Y. (Cornell) VI-C, Pa. VI-C, R. I. VI-C, W. Va. VI-C, W. Va. VI-D.

S-21 Gastro-Intestinal Parasites of Ruminants. To (1) determine the type and extent of parasitic infections in relation to climate, soil, plant environment, and other factors; (2) determine the life cycles and pathogenicity of the various internal parasites and their relationship to climate, soil, and plant environment; (3) determine the influence of agronomic and livestock breeding and management practices on parasitic faunae and infections with special reference to improved pasture and livestock concentration; (4) develop effective preventive measures such as pasture and range treatment with chemicals, periodic treatment or continuous access to anthelmintics, and destruction of intermediate hosts where involved; (5) determine the effectiveness of old and new materials as anthelmintics; and (6) study the physiology of parasites with the aid of radio-active isotopes to aid in the development of new anthelmintics.

Contributing projects: Ark. VII, Fla. VII, Ga. VII, Ky. VII, La. VII, Miss. IX, N. C. VII, Okla. VII, P. R. VII, S. C. VII, Tex. VII.

S-30 Infectious Diseases Affecting Reproduction in Cattle and Sheep. To (1) determine characteristics of the organisms causing infections of the reproductive tract of cattle and sheep; (2) study pathogenesis of these infections; (3) develop methods to accurately diagnose the infections in specific and other hosts; and (4) develop improved methods of prevention and treatment for the control of the infections.

Contributing Projects: Ala. II-I, Fla. II-J, La. II-J, La. II-E, Miss. II-J, N. C. II-J, P. R. II-J, Tenn. II-J, Tex. II-E, Va. II-J.

S-34 Respiratory Diseases of Fowls. By integrated research of the cooperating agencies to obtain new knowledge on the control of respiratory infections through studies of (1) immunization and other control measures; and (2) improvement of diagnostic methods.

Contributing projects: Ala. VI-C, Ark. VI-C, Ky. VI-C, N. C. VI-C, S. C. VI-C, Tex. VI-C, Va. VI-C.

W-5 Avian Respiratory Diseases. To (1) study specific and contributing causes; (2) improve and develop diagnostic techniques; (3) determine methods of transmission of the various respiratory diseases; (4) study changes in structure and function of birds produced by causative agents; and (5) improve and develop methods of prevention and control.

Contributing projects: Calif. VI-C, Idaho VI-C, Oreg. VI-C, Utah VI-C, Wash. VI-C.

W-27 The Mechanism of Vibriosis in Sheep. To determine epidemiology, etiology, immunology and serology, transmission, and prophylaxis and treatment of the disease.

Contributing projects: Colo. IV-A, Idaho IV-A, Mont. IV-A, Utah IV-A, Wyo. IV-A.

W-35 Internal Parasites of Ruminants. To (1) investigate the relationships of parasites (both free-living and parasitic states) to environmental conditions of the western region; (2) determine the influence of management practices on the occurrence of significant numbers of parasites,and to develop improved management procedures as aids in controlling parasites; (3) test the efficacy of currently used and new drugs in controlling immature and mature stages of parasites, and to determine the proper timing, safety and practicability of treatment; (4) determine the cross-transmissibility of parasites among ruminants, and to determine the variations in pathogenicity of parasites associated with changes of hosts; (5) determine the physiological changes in the host associated with parasitism; (6) evaluate currently used procedures for the diagnosis of parasitism, and to develop improved diagnostic methods; and (7) determine through surveys the incidence of and the losses caused by parasites in ruminants (to be financed by state funds).

Contributing projects: Calif. IX, Colo. IX, Hawaii VII, Idaho VII, Mont. VII, Nev. VII, Utah VII, Wash. VII.

W-41 Urinary Calculi (urolithiasis) of Beef Cattle. To (1) determine the physical and chemical properties of urine which favor the development of urolithiasis; (2) determine physiologic and anatomic factors which influence obstructions in the urinary tract; and (3) develop and evaluate methods for the prevention and treatment of urolithiasis.

Contributing projects: Colo. II-K, Idaho II-K, Mont. II-K, Wyo. II-K.

LIST OF COMPILATIONS OF FEDERAL-GRANT RESEARCH PROJECTS AT STATE AGRICULTURAL EXPERIMENT STATIONS

ARS-23-8: Part Numbers	Subject-Matter Area	Title of Section
1	Agricultural Chemistry	Agricultural Chemistry
2	Agricultural Economics	a. Prices, Incomes, & General Studies of Commodities & Industries b. Farm Management c. Land Economics d. Farm Finance & Taxation
3	Agricultural Engineering	a. Land & Water Use & Development b. Power Machinery & Equipment c. Farm Structures & Materials
4	Animal Husbandry	a. Beef Cattle b. Sheep & Goats c. Swine
5	Dairy Husbandry	Dairy Cattle
6	Dairy Technology	Dairy Technology
7	Entomology & Economic Zoology	a. Field Crop Insects b. Fruit, Nut & Vegetable Insects c. Miscellaneous Insects & Economic Zoology d. Insecticides
8	Field Crops	a. Cereal Crops b. Oil, Fiber, Tobacco & Sugar Crops
9	Food Science & Technology	a. Food Chemistry, Microbiology, Sanitation & Public Health b. Food Engineering, Processing, Product and Process Development, Utilization and Waste Disposal c. Food Quality & Standards, Acceptance, Preference, & Marketing
10	Forage Crops, Pastures & Ranges	Forage Crops, Pastures & Ranges
11	Forestry	Forestry

ARS-23-8: Part Numbers	Subject-Matter Area	Title of Section
12	Fruits & Nuts	Fruits & Nuts
13	Home Economics	a. Human Nutrition b. Housing c. Clothing & Textiles d. Foods-Consumer Quality & Utilization e. Household Economics & Management
14	Economics of Marketing	a. Field Crops b. Fruits & Vegetables c. Livestock, Meats & Wool d. Dairy Products e. Poultry & Poultry Products f. Forest Products & Ornamental & Drug Plants g. Cross-Commodity & Functional Studies
15	Meteorology	Meteorology
16	Ornamental & Drug Plants	Ornamental & Drug Plants
17	Plant Pathology & Bacteriology	a. Plant Pathology, Botany, & Diseases of Miscellaneous Crops b. Diseases of Field Crops c. Diseases of Fruit Crops d. Diseases of Vegetable Crops
18	Plant Physiology & Nutrition	Plant Physiology & Nutrition
19	Poultry Industry	Poultry Industry
20	Rural Sociology	Rural Life Studies
21	Soils	a. Soil Chemistry & Microbiology b. Soil Fertility, Management & Soil-Plant Relationships c. Soil Physical Properties, Conservation & Classification
22	Vegetables	a. Vegetable Crops b. Potatoes
23	Veterinary Science	Veterinary Science
24	Weeds	Weed Control